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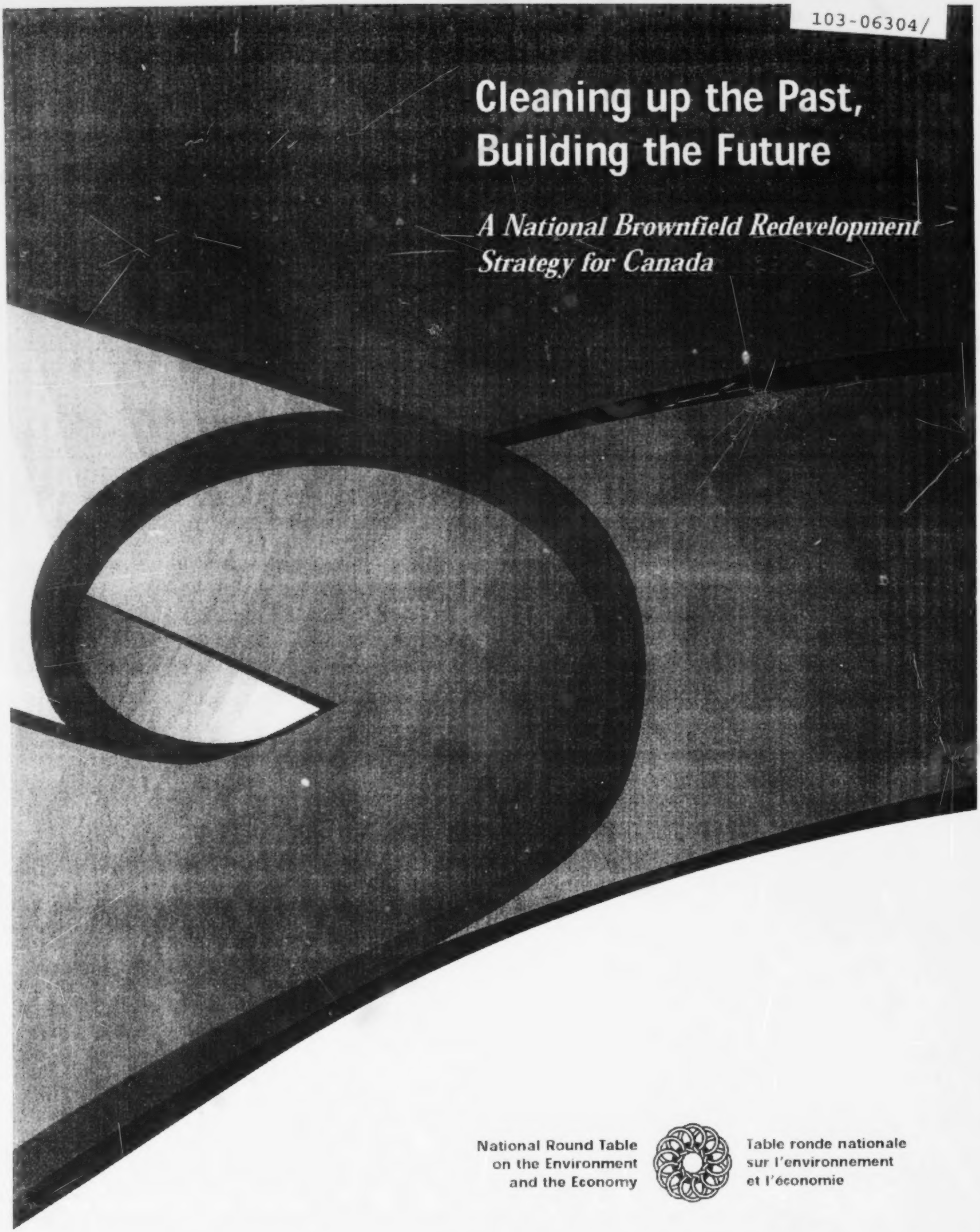
Cleaning up the Past, Building the Future

A National Brownfield Redevelopment Strategy for Canada



National Round Table
on the Environment
and the Economy

Table ronde nationale
sur l'environnement
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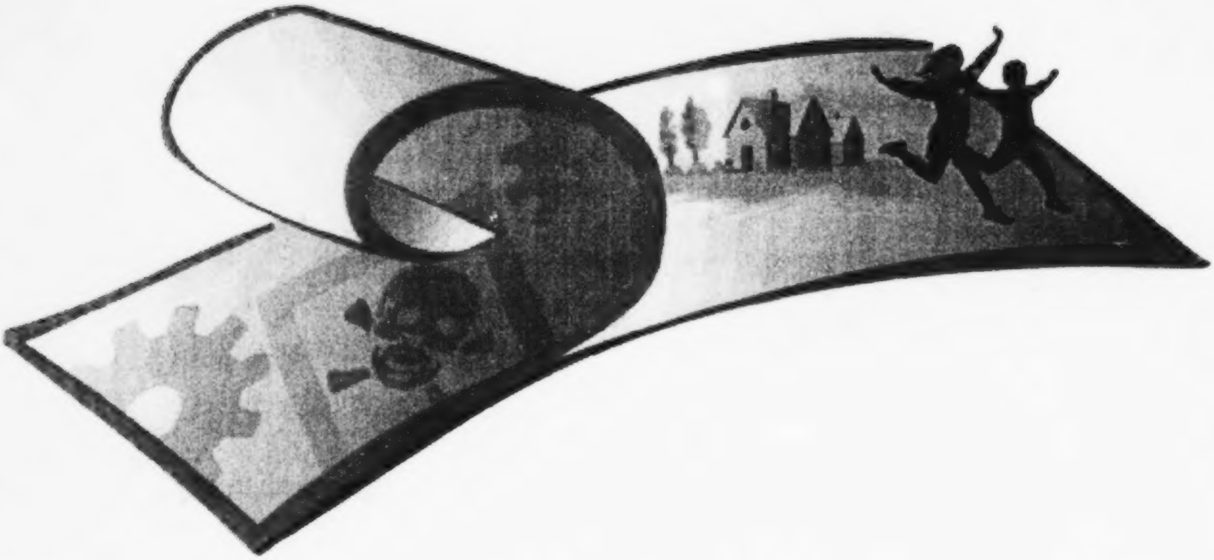

National Round Table
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Table ronde nationale
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et l'économie

NRTEE Mandate

The National Round Table on the Environment and the Economy (NRTEE) was created to "play the role of catalyst in identifying, explaining and promoting, in all sectors of Canadian society and in all regions of Canada, principles and practices of sustainable development." Specifically, the agency identifies issues that have both environmental and economic implications, explores these implications, and attempts to identify actions that will balance economic prosperity with environmental preservation.

At the heart of the NRTEE's work is a commitment to improve the quality of economic and environmental policy development by providing decision makers with the information they need to make reasoned choices on a sustainable future for Canada. The agency seeks to carry out its mandate by:

- advising decision makers and opinion leaders on the best way to integrate environmental and economic considerations into decision making;
- actively seeking input from stakeholders with a vested interest in any particular issue and providing a neutral meeting ground where they can work to resolve issues and overcome barriers to sustainable development;
- analysing environmental and economic facts to identify changes that will enhance sustainability in Canada; and
- using the products of research, analysis and national consultation to come to a conclusion on the state of the debate on the environment and the economy.

The NRTEE's reports synthesize the results of stakeholder consultations on potential opportunities for sustainable development. They summarize the extent of consensus and reasons for disagreement, review the consequences of action or inaction, and recommend steps specific stakeholders can take to promote sustainability.

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Foreword

Brownfields are contaminated lands that lie unused and unproductive throughout Canada. Left as they are, brownfields can harm local economies and pose threats to human health and environmental quality. Redeveloped and returned to productive use, they can generate significant economic, environmental, and social benefits.

The Government of Canada recognized this opportunity in the December 2001 federal budget when it mandated the NRTEE to prepare a National Brownfield Redevelopment Strategy. Brownfield redevelopment is an example of sustainable development in action, and the work undertaken by the Round Table on this file constitutes an important component of its wide-ranging efforts to bring about change.

The NRTEE convened a multistakeholder task force to spearhead development of the strategy. The Task Force, which included representatives from across the country, all three levels of government, the private sector and the environmental community, provided invaluable direct knowledge and experience in the brownfield area. To broaden the consultation process, the NRTEE also held a multistakeholder workshop where a draft of the strategy was tabled for discussion and input.

This national strategy is a realistic, practical, and innovative blueprint for action. The recommendations seek to build on the excellent progress made in a number of Canadian communities and provinces on questions such as environmental liability and incentive financing. With the appropriate public sector leadership involving the coordinated efforts of all levels of government, the private sector and community organizations, Canada's brownfields can be transformed into vibrant centres of community life.

When implemented, this strategy will pave the way for significant economic, environmental and social benefits for Canadians, and for Canada to be established as a global leader in brownfield remediation.

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Executive Summary

> **“*Across Canada, as in most countries, contaminated land lies unused and unproductive. Such sites, known as brownfields, may have the potential for rejuvenation, bringing both health and economic benefits to local communities. Therefore, responding to the Government, the NRTEE has agreed to develop a national brownfield redevelopment strategy in order to ensure that Canada is a global leader in remediation.*”**
>
> *December 2001 Federal Budget*

The Vision

The transformation of Canada's brownfields into economically productive, environmentally healthy and socially vibrant centres of community life, through the coordinated efforts of all levels of government, the private sector and community organizations.

Canada's Brownfields: Legacy and Opportunity

Brownfields are a legacy of a century of industrialization—they are abandoned, idle or underutilized commercial or industrial properties where past actions have caused known or suspected environmental contamination, but where there is an active potential for redevelopment.

There may be as many as 30,000 such sites in Canada. They include decommissioned refineries, former railway yards, old waterfronts and riverbanks, crumbling warehouses, abandoned gas stations, former drycleaners and other commercial properties where toxic substances may have been used or stored. Left idle and unmanaged, brownfields represent a significant loss of economic opportunity. They adversely impact a neighbourhood's image and quality of life, and in some cases pose risks to human health and the environment.

Brownfields also represent an untapped opportunity to revitalize older neighbourhoods and generate wealth for communities. With the right kind of incentives and partnerships, brownfields can have a bright future. Already, several thousand contaminated sites have been cleaned up in Canada, creating tens of thousands of jobs, millions of dollars in additional property taxes and thousands of new housing units. With the package of supportive measures outlined in this national strategy, Canada's nascent brownfield redevelopment industry could evolve rapidly into a business worth many billions of dollars a year.

In addition to direct commercial benefits realized by the developers and users of the land, brownfield redevelopment within cities (instead of the development of so-called "greenfield" land on the city's periphery) has the potential to generate up to seven billion dollars a year in public benefits in Canada.* These public benefits arise through the increased economic productivity of surrounding land, increased tax revenues, lower municipal infrastructure costs, reduced health risks, preservation of agricultural land, less air pollution and improved neighbourhoods.

The Benefits of Brownfield Redevelopment: Helping Build Sustainable Communities

The case for redeveloping Canada's brownfields is strong. Experience with brownfield redevelopment in Canada, the United States and Europe suggests that, while specific circumstances may vary, significant benefits are consistently seen in the following areas:

Economic benefits:

- creation and retention of employment opportunities
- increased competitiveness for cities
- increased export potential for Canadian cleanup technologies
- increased tax base for all three levels of government.

---

* *Hara Associates, "Estimate of National Public Benefits from Canadian Brownfield Redevelopment", backgrounder prepared for NRTEE, 2003.*

Social benefits:

- improved quality of life in neighbourhoods (people can live closer to work and recreational facilities)
- removal of threats to human health and safety
- access to affordable housing.

Environmental benefits:

- reduced urban sprawl pressures on greenfield sites around a community
- restoration of environmental quality in the community
- improved air quality and reduced greenhouse gas emissions in urban areas.

The Case for a National Strategy: Challenges Facing Brownfield Redevelopment

The case for a national strategy for brownfield redevelopment focuses on that large group of brownfields where both cleanup costs and the potential for redevelopment are high. Brownfields in this group are likely to be found in established urban areas and along transportation corridors, where municipal services are readily available. The market value of the land itself, once cleaned up, may be slightly above or slightly below the combined cost of land plus cleanup.

However, a number of challenges, individually and in combination with one another, serve to keep such sites abandoned or idle, with little prospect of remediation or reuse without strategic intervention. These challenges typically reflect failures in the market. When markets fail, or are imperfect, those actions that would be expected to increase the collective national wealth do not take place. In the case of brownfields, the most significant market failures preventing redevelopment include:

- lack of access to capital
- regulatory liability risk
- civil liability risk
- limited access to insurance protection
- regulatory delays
- stigma and risk perception
- lack of awareness among many key public sector and private sector groups.

A national strategy must tackle these market failures head on, adopting specific actions targeted at overcoming specific failures, to bring these brownfields back into the marketplace and back to life in Canadian communities.

All participants in the brownfield redevelopment process, public and private sector, must participate if such a strategy is to succeed. Public sector-led initiatives are central to efforts aimed at overcoming the market barriers, and in particular those of bridge financing and uncertainty around liability.

Making Progress

Canada's experience with brownfield redevelopment stems from a limited number of impressive initiatives in several provinces and municipalities. These initiatives can serve as the foundation of a more comprehensive, coordinated national strategy. For example:

- In 2000, the federal government established the Green Municipal Enabling Fund, administered in partnership with the Federation of Canadian Municipalities, which can provide grants of up to $100,000 for community brownfield inventories and assessments of development and policy options.
- The provinces of Ontario and Quebec have introduced legislation specifically directed at promoting brownfield redevelopment by addressing key barriers to redevelopment.
- Quebec has established a highly successful funding incentive program for brownfield redevelopment, Revi-Sols, which provides grants to communities to cover the costs of studies leading to rehabilitation work, as well as the actual costs of rehabilitation work.
- Municipal governments in several provinces, including Hamilton, Ontario, with its innovative Environmental Remediation and Site Enhancement (ERASE) Plan, have demonstrated their capacity to be the "on the ground" leaders in developing and delivering brownfield redevelop-

ment initiatives, forging community partnerships involving governments and the private sector.

Strategic Directions: A Blueprint for Action

The national brownfield redevelopment strategy seeks to:

- put in place the essential building blocks of a coordinated, comprehensive national approach to cleaning up and redeveloping brownfields in Canada
- build on recent initiatives in several provinces and Canadian communities to promote brownfield redevelopment across the country as a practical tool for sustainable development
- engage the full spectrum of public, private and community interests involved in community development
- address the priority challenges to brownfield redevelopment through a mix of policy instruments targeted at specific market failures
- focus efforts on the "middle tier" of brownfields, where strategic public sector initiatives are needed to achieve redevelopment.

The strategy proposes actions under three strategic directions for transforming brownfields into vibrant centres of community life (see Table E-1 for a summary). Detailed proposals and a rationale are presented under each recommendation. The recommendations represent a package of initiatives that address key market barriers to brownfield redevelopment.

Strategic Direction 1: Applying Strategic Public Investments to Address Upfront Costs

Publicly funded financial incentives represent a strategic investment in the future of brownfield sites and their communities. The recommended actions under Strategic Direction 1 seek to:

- apply strategic public investments, by removing tax impediments and providing loans, grants and mortgage guarantees, to lever private capital and overcome the barriers in the market to accessing capital for the early stages of redevelopment
- establish an effective mechanism through which the federal, provincial/territorial and municipal governments can provide financial incentives to qualifying brownfield redevelopment projects.

Strategic Direction 2: Establishing an Effective Public Policy Regime for Environmental Liability and Risk Management

Effective liability protection for participants in brownfield redevelopment is a cornerstone of a successful long-term national strategy for revitalizing Canada's brownfields. The recommended actions under Strategic Direction 2 seek to:

- provide all participants in brownfield redevelopment with a clear, fair and consistent public policy regime to bring greater certainty and efficiency to questions of liability and risk management
- promote a coordinated effort on liability and risk management among all levels of government.

Strategic Direction 3: Building Capacity for and Community Awareness of Brownfield Redevelopment

Successful brownfield redevelopment projects are built around community awareness, support and skills. The recommended actions under Strategic Direction 3 seek to:

- enhance capacity at all levels to facilitate brownfield redevelopment
- build awareness among all partners of the benefits and challenges of brownfield redevelopment
- build shared objectives around a common vision of transforming brownfield sites into active centres of community life
- forge partnerships based on community involvement and support.

The Leadership Challenge

The experience with brownfield redevelopment in Canada, the United States and other countries demonstrates that the single most essential ingredient to success is public sector leadership. Each level of government has a unique and essential role to play. In this regard, the federal government has a unique responsibility—and a unique opportunity—to launch the national strategy and begin the transformation of

Canada's brownfields into special places in Canadian communities.

Recommendations relating to leadership fall into two key areas:

1. Government Support for a National Strategy

That the federal government stimulate action on brownfield redevelopment by adopting the strategy and implementing the measures under its jurisdiction as quickly as possible, including measures such as:

- establishing a federal office to coordinate the participation of various federal departments and agencies in the strategy
- implementing appropriate financing measures (proposed under Strategic Direction 1)
- moving to harmonize compliance with federal and provincial requirements
- promoting a coordinated national effort on brownfield redevelopment by encouraging other jurisdictions to match federal initiatives, where applicable, and to undertake complementary initiatives within the framework of a national strategy.

That provincial governments move toward establishing multi-faceted programs with essential elements geared toward:

- providing financial support to local government and private redevelopment efforts
- ensuring legislation is in place to enable municipalities to offer a full suite of incentive programs and other measures to promote brownfield redevelopment
- adopting consistent provincial or regional risk assessment protocols and providing the infrastructure necessary for efficient risk assessments
- rationalizing liability regimes conducive to stimulating redevelopment.

That municipal governments continue to play a pivotal role in the delivery of a brownfield redevelopment strategy and tools by:

- establishing local redevelopment priorities
- simplifying and facilitating development and building approvals for brownfields
- redeploying municipally held brownfields by returning them to the marketplace
- providing financing and planning incentives to qualifying projects.

2. Governments' "Own House in Order"

That the federal government maintain and enhance its redevelopment program for federally owned brownfield sites, such as military sites, railway lands and ports.

That the federal, provincial and municipal governments establish a policy that, when any property is purchased for their own use, brownfield sites should be given priority over greenfield sites.

Implementing the Strategy

A flexible, phased-in approach is called for in implementing the strategy, recognizing that some provinces and municipalities have well-established brownfield initiatives while many do not, and that not all the recommended actions can or should be undertaken immediately. The goal should be to build on the progress and successes to date, develop momentum, awareness and support, and strengthen the program over time. The approach should encompass two phases:

- a "quick start" phase during which governments at all levels signal their support for the national strategy and look to those recommended actions that could be undertaken or initiated relatively easily and quickly, including amendments to the *Income Tax Act*
- a longer-term phase during which governments and others can address areas that take some time, such as changes in legislation relating to liability, training and longer-term capacity-building initiatives.

Table E-2 summarizes how the recommendations outlined in this national strategy could be structured within a phased approach.

As the strategy matures, governments could strengthen the national strategy in response to the experience gained in the first few years. For example, a wider range of communities and interests could be encouraged to participate in brownfield redevelopment. As well, a broader mix of policy instruments could be applied, building on innovations in Canada and other countries.

Table E-1 Summary of National Strategy Recommendations

Strategic Direction	Recommendations	Responsibility
1. Applying strategic public investments to address upfront costs	1.1 Implement tax system changes to promote brownfield redevelopment	Federal Provincial/Territorial Municipal
	1.2 Remove liens and tax arrears against qualifying brownfield sites	Federal Provincial/Territorial Municipal
	1.3 Provide mortgage guarantees for qualifying brownfield sites	Federal
	1.4 Provide revolving loans for qualifying brownfield sites	Federal Provincial/Territorial Municipal
	1.5 Provide grants for qualifying brownfield sites	Federal Provincial/Territorial Municipal
2. Establishing an effective public policy regime for environmental liability and risk management	2.1 Allow binding contractual allocation of liability	Provincial/Territorial
	2.2 Provide for termination of regulatory liability	Provincial/Territorial
	2.3 Provide for termination of civil liability after a limitation period	Provincial/Territorial Federal
	2.4 Create an insurance fund for post-liability termination claims	Provincial/Territorial Federal
	2.5 Apply site-specific assessment and approvals regime	Provincial/Territorial Federal Municipal
	2.6 Provide for regulatory approvals of remediation	Provincial/Territorial
3. Building capacity for and community awareness of brownfield redevelopment	3.1 Increase capacity to undertake brownfield redevelopment projects	Federal Provincial/Territorial Municipal
	3.2 Facilitate the demonstration of innovative environmental technologies and remediation processes	Federal Provincial/Territorial Municipal
	3.3 Raise awareness of the benefits of brownfield redevelopment	Federal Provincial/Territorial

Table E-2 Implementing the National Strategy on Brownfield Redevelopment: Possible Phasing in of Recommended Actions

Phase 1: A "Quick Start" Agenda (e.g. 12-month horizon)	Phase 2: A Medium-Term Agenda (e.g. 5-year horizon)
Ensure all levels of government support a national strategy	Allow binding contractual allocation of liability (recommendation 2.1)
Establish a Federal Coordinating Office on Brownfield Redevelopment	Provide for termination of regulatory liability (recommendation 2.2)
Ensure governments' "own house in order"	Provide for termination of civil liability after limitation period (recommendation 2.3)
Establish performance measurement framework for strategy	Create an insurance fund for post-liability termination claims (recommendation 2.4)
Establish National Brownfield Association	Apply site-specific assessment and approvals regimes (recommendation 2.5)
Develop intergovernmental memoranda of understanding on brownfield redevelopment	Provide for regulatory approvals of remediation (recommendation 2.6)
Implement tax system changes to promote brownfield redevelopment (recommendation 1.1)	Facilitate the demonstration of innovative environmental technologies and remediation processes (recommendation 3.2)
Remove liens and tax arrears against qualifying brownfield sites (recommendation 1.2)	Monitor implementation
Provide mortgage guarantees for qualifying brownfield sites (recommendation 1.3)	Evaluate initiatives progress
Provide revolving loans for qualifying brownfield sites (recommendation 1.4)	Adjust/strengthen initiatives
Provide grants for qualifying brownfield sites (recommendation 1.5)	Encourage new participants through education and federal incentive funding
Increase capacity to undertake brownfield redevelopment projects (recommendation 3.1)	Expand range of policy instruments
Raise awareness of the benefits of brownfield redevelopment (recommendation 3.3)	

Table E- Summary of National Strategy Recommendations

Strategic Direction	Recommendations	Responsibility
1. Applying strategic public investments to address upfront costs	1.1 Implement tax system changes to promote brownfield redevelopment	Federal Provincial/Territorial Municipal
	1.2 Remove liens and tax arrears against qualifying brownfield sites	Federal Provincial/Territorial Municipal
	1.3 Provide mortgage guarantees for qualifying brownfield sites	Federal
	1.4 Provide revolving loans for qualifying brownfield sites	Federal Provincial/Territorial Municipal
	1.5 Provide grants for qualifying brownfield sites	Federal Provincial/Territorial Municipal
2. Establishing an effective public policy regime for environmental liability and risk management	2.1 Allow binding contractual allocation of liability	Provincial/Territorial
	2.2 Provide for termination of regulatory liability	Provincial/Territorial
	2.3 Provide for termination of civil liability after a limitation period	Provincial/Territorial Federal
	2.4 Create an insurance fund for post-liability termination claims	Provincial/Territorial Federal
	2.5 Apply site-specific assessment and approvals regime	Provincial/Territorial Federal Municipal
	2.6 Provide for regulatory approvals of remediation	Provincial/Territorial
3. Building capacity for and community awareness of brownfield redevelopment	3.1 Increase capacity to undertake brownfield redevelopment projects	Federal Provincial/Territorial Municipal
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	3.3 Raise awareness of the benefits of brownfield redevelopment	Federal Provincial/Territorial

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Phase 1: A "Quick Start" Agenda (e.g. 12-month horizon)	Phase 2: A Medium-Term Agenda (e.g. 5-year horizon)
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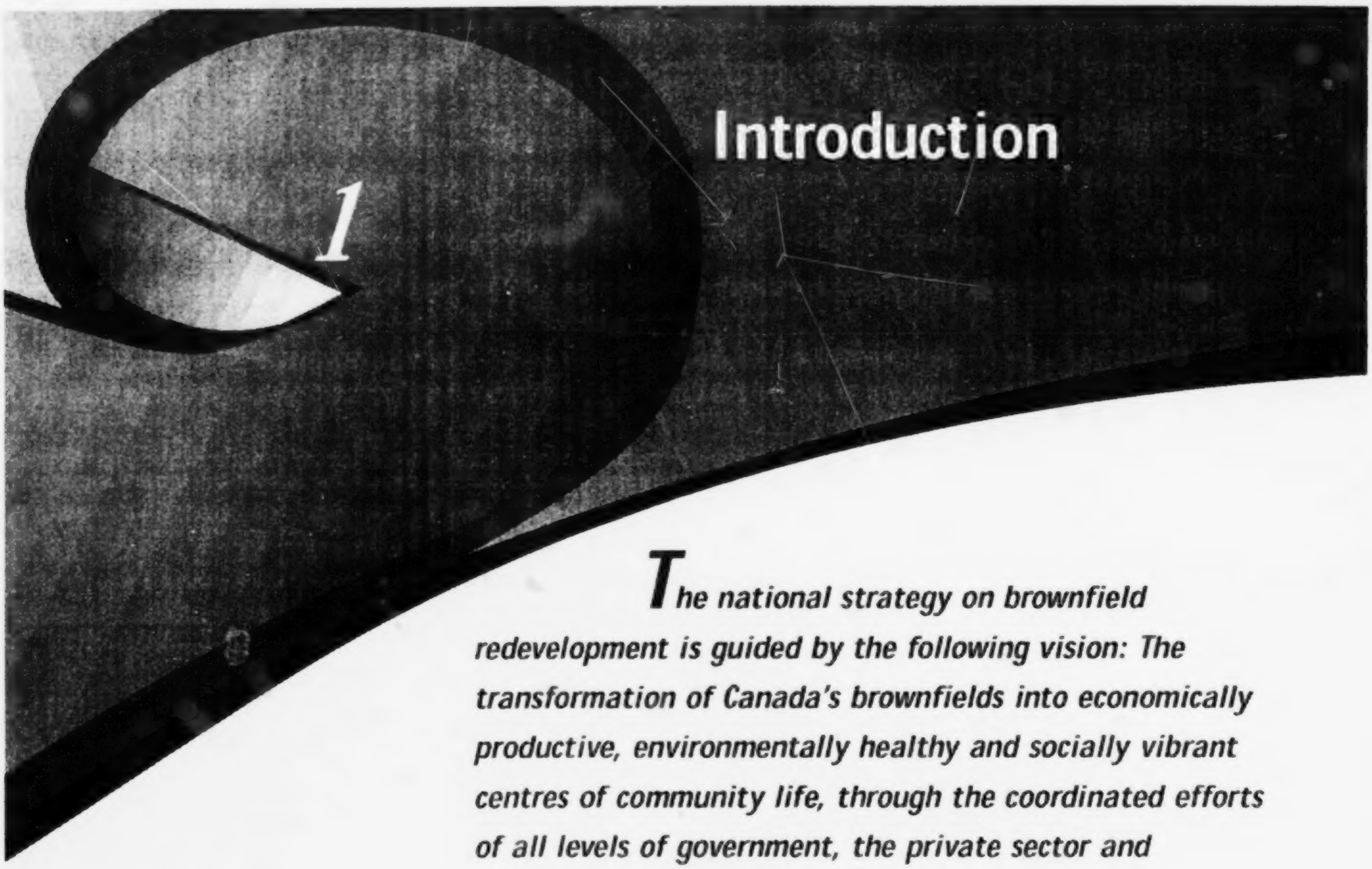
Raise awareness of the benefits of brownfield redevelopment (recommendation 3.3)	



1 Introduction

The national strategy on brownfield redevelopment is guided by the following vision: The transformation of Canada's brownfields into economically productive, environmentally healthy and socially vibrant centres of community life, through the coordinated efforts of all levels of government, the private sector and community organizations.

Canada's Brownfields: Legacy and Opportunity

Brownfields shape the landscapes of communities in every region across Canada.

Brownfields stand as a legacy of a century of industrialization in Canada. They can be found in cities and towns across the country: abandoned, vacant, derelict or underutilized commercial and industrial properties where past actions have resulted in actual or perceived contamination. But brownfields differ from other contaminated sites in one important way—they hold excellent potential for being cleaned up and redeveloped for productive uses.

Brownfields exist in a variety of sites: decommissioned refineries, former railway yards, old industrial waterfronts and riverbanks, crumbling warehouses, abandoned gas stations, former drycleaners—any properties where toxic substances may have been used or stored. They may be publicly or privately owned, held under trusteeship or be "orphan" sites, without ownership.

The City of Brantford, Ontario, was left with a brownfield property owned by a bankrupt company. No one was in control of the property, and when squatters subsequently occupied the vacant building, the City had no authority to evict them. The building eventually burned to the ground in a spectacular blaze that nearly forced the emergency evacuation of the nearby Brantford General Hospital.

There may be as many as 30,000 such sites in Canada. Left idle and unmanaged, brownfields represent a significant loss of economic opportunity. They adversely affect a neighbourhood's image and quality of life, and in some cases they pose risks to human health and the environment.

Brownfields represent an untapped opportunity to revitalize older neighbourhoods and generate wealth for communities.

There is a growing recognition in Canada and other countries that brownfields represent an untapped opportunity to revitalize some of the oldest and most neglected neighbourhoods of many communities—to restore environmental quality and to bring new life to these properties in the form of housing, small businesses and recreational opportunities. Over the past few years, experience in the United States, Europe and several Canadian cities has demonstrated that, with the right kind of incentives and partnerships, brownfields can have a bright future.

Already, several thousand contaminated sites have been cleaned up in Canada, creating tens of thousands of jobs, millions of dollars in additional property taxes and thousands of new housing units. With the package of supportive measures outlined in this national strategy, Canada's nascent brownfield redevelopment industry could evolve rapidly into a business generating many billions of dollars a year.

Transforming brownfields into vibrant centres of community life will not be a simple task. Brownfields present a complex array of challenges for communities in every part of Canada. Long-standing legal, financial and community concerns must be acknowledged and addressed. The interests of all parties involved in community development—governments at all levels, the private sector, community groups—must be engaged around a shared commitment. Above all, public leadership must lend credibility, support and momentum to the task.

The Benefits of Brownfield Redevelopment: Helping Build Sustainable Communities

Note: Italicized terms marked with an asterisk (*) are defined in Annex 1.

The case for redeveloping brownfields is strong. Cleaning up and revitalizing a brownfield site can transform the quality of life in an older neighbourhood or district, generating a wide range of economic, environmental and social benefits. And the benefits are seen not only in the neighbourhood, but also at the city, provincial and even national levels: brownfield redevelopment can be a key tool for building sustainable communities in Canada. By restoring environmental quality and revitalizing once-abandoned properties, brownfield redevelopment represents an excellent example of putting into practice the principles of sustainable development—development that seeks to integrate economic, environmental and social goals so that the needs of today's generation can be met without compromising the ability of future generations to meet their needs.

Annex 2 provides examples of economic, social and environmental benefits from brownfield redevelopment projects in several Canadian cities. Experience with brownfield redevelopment in Canada, the United States and Europe suggests that, while specific circumstances may vary, significant benefits are consistently seen in the following areas:

1. Creation and retention of employment opportunities

Brownfield redevelopment creates employment opportunities both in the specialized areas of cleanup technology and development, and in the new enterprises

Quebec's Revi-Sols program, established to promote brownfield redevelopment, has created an estimated 1,075 person-years of employment over the last five years in the areas of assessment and cleanup.[1]

The redevelopment of a small brownfield property in the West Harbourfront area of Hamilton, Ontario, involving the construction of 27 new housing units on land formerly used for rail yards and a gasoline station, generated personal income of $720,000 from on-site remediation and construction jobs, and created 10 permanent jobs.[2]

The City of Brantford, Ontario, was left with a brownfield property owned by a bankrupt company. No one was in control of the property, and when squatters subsequently occupied the vacant building, the City had no authority to evict them. The building eventually burned to the ground in a spectacular blaze that nearly forced the emergency evacuation of the nearby Brantford General Hospital.

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At the national level, an enhanced capacity for brownfield redevelopment can also mean increased export potential for Canadian cleanup technologies.

2. Increased tax revenues

Brownfield redevelopment increases the tax base for all three levels of government, through the creation of new economic bases to sustain property, income and capital taxes. At the municipal level, a redeveloped site increases property tax revenues and the funding available to local governments to provide public services. Experience in the United States has also demonstrated that as brownfields are redeveloped, the value of surrounding properties within a radius of up to 2.5 kilometres may rise by an average of 10 percent, with associated increases in property tax revenues.[3]

Once completed, the Spencer Creek Village project in Dundas, Ontario, involving nearly 500 new housing units and 40,000 square feet of commercial space on the former site of a steel foundry, will generate an estimated:

- ***$1.76 million a year in new property tax revenue for the municipality***
- ***$7.55 million in additional provincial sales tax***
- ***$6.6 million in additional GST revenues.***[4]

At the provincial and federal levels, brownfield redevelopment brings increases in sales tax and goods and services tax (GST) revenues, as well as an increase in income tax revenues. Indirectly, all three levels of government can benefit through reduced funding requirements for new roads and infrastructure, as brownfields tend to be located in areas with services already in place.

3. Revitalized neighbourhoods and communities

Brownfield redevelopment can be an engine for urban renewal and economic growth, particularly where there are large tracts of brownfields in the central business district or in heavily industrialized suburbs.

A redeveloped brownfield returns idle lands to productive uses. It can mean greater access to affordable housing. It can improve the quality of life in a neighbourhood, enabling residents to live closer to work and recreational facilities. It can directly create new businesses in the area, which in turn attract additional businesses and services.

Redevelopment of the old CN Rail repair shops in Moncton, New Brunswick, created 110 acres of new sports facilities in an accessible downtown location. These facilities include 10 baseball diamonds, four soccer fields, two football fields and a sportsplex containing four NHL-sized hockey rinks.[5]

The redevelopment of the False Creek south shore in downtown Vancouver, launched in the 1970s on 80 acres of decaying industrial lands, stands as a landmark example of how brownfield redevelopment can support community social goals. For example, the city's development plan explicitly called for a housing mix that accommodated households of all income levels and age groups. As a result, the redevelopment project was opened to all types of developers, market and non-market, co-op and condominium, rental and ownership, so that all segments of Vancouver society could be included.[6]

In smaller and rural communities—where the impact of even a single large brownfield can overwhelm a community's resources and blight the landscape—brownfield redevelopment can be a source of rebirth.

4. Reduced urban sprawl

Brownfield redevelopment reduces development pressures on *greenfields*[*] in the community's outlying areas, resulting in both infrastructure and transportation savings.

Every hectare of a brownfield redeveloped for residential purposes can save as much as $66,000 a year in transportation costs (relative to equivalent greenfield redevelopment).[7]

Redeveloped brownfields usually make effective use of existing municipal infrastructure and are strategically located along existing transportation corridors. Development of greenfields, on the other hand, often consumes otherwise productive agricultural land and requires the installation of costly municipal infrastructure and services. Typically, greenfield development also consumes much more land than a brownfield project and is less compatible with pedestrian and public transit uses.

Every hectare developed in a brownfield project can save an estimated minimum of 4.5 hectares of greenfield land from being developed in an outlying area.[8]

5. Increased competitiveness for cities

The effects of increased private sector productivity—through compact land use, a reduced tax burden to support infrastructure, and an improved business climate from better neighbourhoods and reduced congestion—all combine to increase the competitiveness of Canadian cities seeking to attract foreign investment.

6. Enhanced environmental quality, health and safety

Many brownfield sites are contaminated with industrial or other toxic wastes that pose a health and safety risk to nearby residents and workers. Cleaning up these sites can help restore environmental quality in the community and remove the threats to health and safety.

A shopping mall was built in Shawinigan, Quebec, on the site of a former chlor-alkali and solvent manufacturing plant that had been located beside a residential area, protecting the health of neighbourhood residents and redeveloping a property that had been derelict for more than 25 years.[9]

Channelling growth into brownfields instead of greenfields can also contribute to improved air quality and reduced greenhouse gas emissions in urban areas. The redevelopment of older downtown sites provides an alternative to urban sprawl that promotes more compact urban forms and reduces the commuting and transportation requirements of residents, workers and businesses.

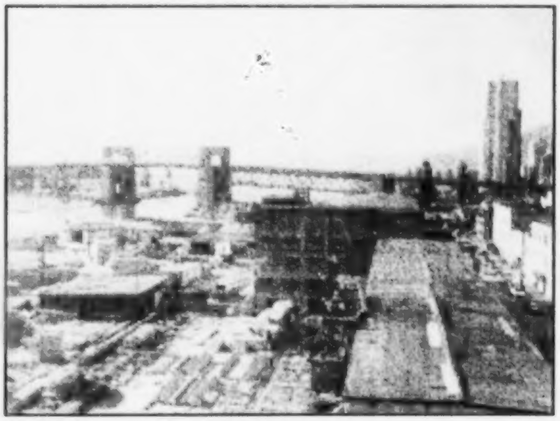
For example, it has been estimated that, on average, a suburban resident in the Greater Toronto Area travels more than two and a half times further by car on an annual basis than an urban resident living in a former brownfield site, due to the latter's shorter commuting distances and greater use of public transit. (The latter's average annual savings in fuel-based emissions is actually greater than this ratio, because reduced car travel results in less congestion and increased fuel efficiency for other travellers, especially at peak commuter time periods.)[10]

Brownfield Redevelopment's Impact on the Canadian Economy

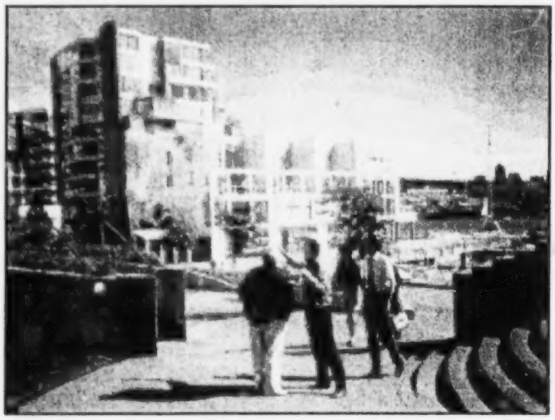
In addition to providing important economic, environmental and social benefits at the community level, brownfield redevelopment can generate substantial economic benefits to the overall Canadian economy, according to a preliminary economic study commissioned by the NRTEE in 2002.[11] ***The study sought to identify the goods and services associated with the brownfield redevelopment sector of the Canadian economy, and model the sector's income multiplier effects on the economy—how one dollar spent on an activity is re-spent (through several rounds) on further activities and commodities.***

The study concluded that brownfield redevelopment has an extremely high multiplier effect, reflecting the high service content of the brownfield redevelopment cluster and the large number of interfirm linkages that typify brownfield redevelopment activity (e.g. the high degree to which the brownfield sector purchases goods and services from other sectors of the Canadian economy).

(For more information on the study, see Annex 3.)



False Creek, Vancouver, B.C., before redevelopment, 1950s



False Creek, Vancouver, B.C., 2002

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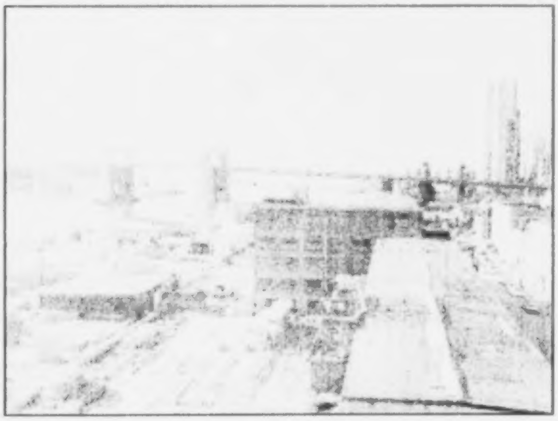
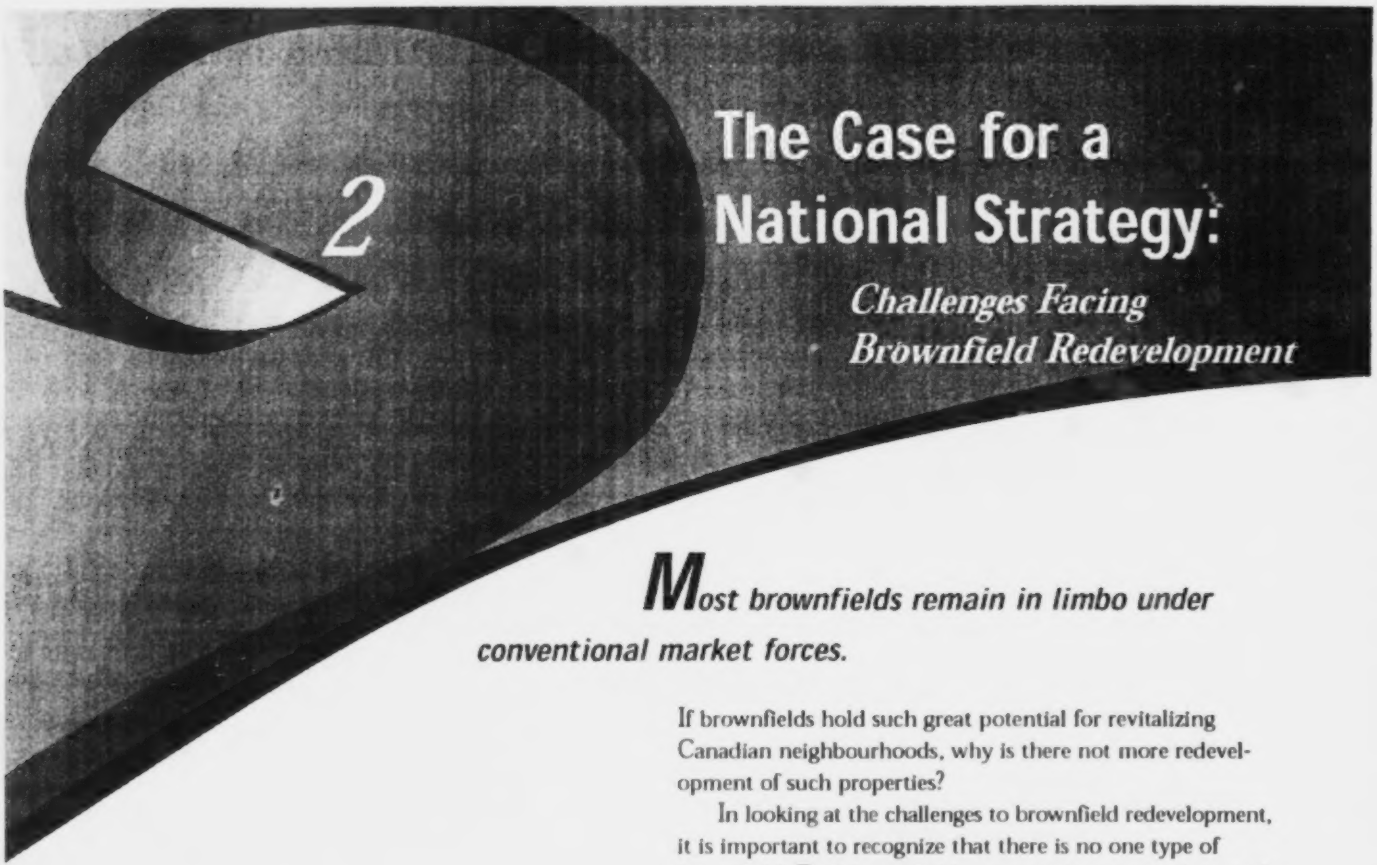


False Creek, Vancouver, B.C., before redevelopment, 1950s

False Creek, Vancouver, B.C., 2002



2

The Case for a National Strategy:

Challenges Facing Brownfield Redevelopment

Most brownfields remain in limbo under conventional market forces.

If brownfields hold such great potential for revitalizing Canadian neighbourhoods, why is there not more redevelopment of such properties?

In looking at the challenges to brownfield redevelopment, it is important to recognize that there is no one type of brownfield. Each brownfield comes with its particular set of problems and opportunities. Its prospects for redevelopment are driven by both its past—the history of activity on the site—and its future, shaped by such factors as market interest, liability, the municipality's plans for future use and *remediation** technologies.

In terms of their prospects for redevelopment, brownfields can be grouped into three general tiers:[12]

- In the top tier are sites whose market values greatly exceed the costs of remediation, and which account for perhaps 15 to 20 percent of contaminated sites in the country. Redevelopment of these brownfields is often driven by market forces and, because they tend to be very profitable, they do not remain abandoned or idle for long. That is why many former industrialized sites are redeveloped without any special attention or outside assistance.

- In the bottom tier, and representing another 15 to 20 percent of all contaminated sites, are properties where the cost of cleanup far exceeds the value of the land after remediation. Together, high cleanup costs and uncertainty far outrun any market interest. Many such sites are in rural or remote areas or in smaller urban areas. These properties have no realistic prospects for redevelopment in the foreseeable future.

- The middle tier, with perhaps 60 to 70 percent of Canada's contaminated sites, is the most intriguing and complicated group. Cleanup costs are high for these sites, but so too is the potential for redevelopment. These brownfields are likely to be in established urban areas and along transportation corridors, where municipal services are readily available. The market value of the land itself, once cleaned up, may be slightly above or slightly below the combined cost of land and cleanup. The sites sit idle because they face too many hurdles for conventional market forces to overcome. All the other potential social, environmental and economic benefits are therefore lost. Under these conditions, the brownfields remain in limbo, with little prospect of remediation or reuse without strategic intervention to address the barriers.

The impasse confronting this middle tier of brownfields is rooted in several areas of challenge that, individually or in combination, can affect redevelopment in different ways. These are discussed below.

Brownfield redevelopment is hindered by a lack of access to capital from traditional sources.

The lack of access to capital for upfront costs has been one of the most important obstacles to brownfield redevelopment.

Traditional sources of capital have generally been reluctant to support the upfront *site assessment** and cleanup phases of brownfield redevelopment projects. Many lenders are concerned about the lack of liquidity in holding a brownfield property as security, and fear being unable to realize on security offered in connection with a financing arrangement. Some lenders also may fear exposing themselves to *regulatory** and *civil liability** in the event they come into possession of an unremediated site. The capital-intensive character of brownfield projects forces lenders to seek out assurances that the risks associated with brownfield redevelopment are worth taking. However, brownfield redevelopers can rarely offer such assurances.

Even if traditional financial institutions were able to obtain sufficient reassurance before lending capital to brownfield developers, the basic economics of many projects still will not attract many investors. This is especially true when the rates of return on redeveloped brownfields are compared with those from developed greenfield sites, which typically have a much shorter development period. For example, a developer may choose to acquire an untouched greenfield site and build a facility that specifically meets its needs. Alternatively, it may purchase a brownfield property that may be contaminated but is located in a fully serviced central area of a city. In the latter case, the developer will need to spend considerable time and money having the site assessed to determine exactly what contaminants it may contain. The developer will have to find the necessary upfront capital to accomplish even this preliminary task. Additional funding will then be required for site cleanup. All this must occur before site redevelopment commences. These pre-project costs can make redevelopment prohibitively expensive. Moreover, when estimating their borrowing needs for a project, redevelopers must bear in mind the cost of insurance products that help guard against cost overruns during the remediation process. Such upfront expenses place brownfield projects at a disadvantage compared with greenfield projects on agricultural lands or other open spaces at a city's perimeter.

Questions over liability increase uncertainty and risks for all parties involved in brownfield redevelopment.[13]

Under current provincial and federal legislation, participants in a brownfield redevelopment project may be exposed to liability arising from the contamination caused by the property's original use—even if the property was managed according to the laws and standards of the day. Each participant is exposed to potential *joint and several** regulatory and civil liabilities. That is, each could be individually exposed to the total of all the liability that might emerge when land use changes from vacant or idle to active and occupied.

In certain jurisdictions, regulators will not provide an approval for a remedial action plan or a certification of completion after remediation. Even where these are available (in British Columbia, for example), the protection afforded is limited, because liability can be reopened for a wide variety of reasons (principally related to changes in standards and changes in use).

The absence of reliable closure on liability and the unpredictable duration of the risk of liability, as well as the amount of that potential liability, affect all interested parties:

- *Owners* of brownfields may be reluctant to return lands to other uses because they are unwilling to accept the risks associated with civil liability to subsequent third-party owners and occupants of redeveloped sites, as well as the potential regulatory liability arising out of changes in land use. While some developers may be prepared to accept a transfer of liability, there is no provision in any federal or provincial legislation to permit liability transfers that would be binding on regulators and third parties. Consequently, many owners choose to keep the sites vacant as the best approach to managing risk exposures. (Insurance tools are available to provide some relief from liability, but can provide only limited periods of protection and have premiums that typically are too high for smaller sites).
- *Conventional developers* may be reluctant to redevelop because they are unwilling to assume liability risks or, if they are willing, lack access to a mechanism that enables them to assume such risks with predictable closure.
- *Lenders* may be unwilling to finance redevelopment projects for fear they will be exposed to liability.
- *Municipalities* may feel compelled to impose environmental requirements and obtain indemnities to ease their own liability concerns.
- *Provincial agencies* may be unwilling to grant redevelopment approvals because of ongoing concerns over having to assume liability.
- *Ultimate occupants* or *end-users* are subject to the same liabilities that apply to current and former users. As a result, some may be reluctant to become involved, fearing they will be held responsible for the environmental impacts flowing from contamination caused by original property uses.

Compounding the issue of liability is the role the "polluter pays" principle has come to play in guiding public policy. The polluter-pays principle is an established policy principle aimed at addressing contamination resulting from current industrial activity. The principle seeks to ensure that companies manage their activities in a manner that does not create adverse environmental impacts beyond established regulatory standards. However, some analysts have suggested that when applied to brownfield redevelopment, the principle has had the unintended effect of preventing redevelopment and reuse. The difficulty arises in applying today's standards to activities that took place long ago—more than a century in some cases. The proponents of such activities—the "polluters" from today's perspective—are often long gone. In the absence of the original polluter, the polluter-pays principle may result in liability being assigned to any party that comes into contact with such properties. As a consequence, many parties involved as subsequent owners or potential redevelopers are reluctant to act, fearing they might attract liability claims. It is not simply private property owners who are affected—many brownfield sites have passed into the hands of municipalities and others not connected with the original acts of contamination.

Prospective developers of brownfields may face inflexible and inconsistent requirements for assessing risks on their sites.

Provincial and municipal approvals processes often require brownfields to be remediated to meet a *generic set of criteria* with universal applicability, even where a site-specific risk assessment indicates that the condition of the property, and its anticipated uses, may not warrant this approach.

Various levels of government in Canada do not always agree on the validity of risk assessments. For example, some municipalities do not accept risk assessment as a valid basis upon which to remediate brownfields. Instead, due to concerns about liability, they may impose additional requirements for environmental approvals. These can include, for example, requiring remediation beyond provincial standards as the condition for granting municipal approvals.

Brownfield redevelopment must cut across diverse jurisdictions as well as several disciplines.

Parties developing brownfields face regulatory requirements and legislated processes established by federal, provincial and municipal governments. Each level of government may be required to review and approve a proposed brownfield redevelopment project. Despite recent efforts to harmonize the requirements of different governments in some areas (such as environmental assessment), developers may still face overlapping and even inconsistent requirements.

At the same time, brownfield redevelopment can be complex. It necessarily involves a number of disciplines and responsibility areas within a single government. At the provincial and municipal levels, for example, there may be requirements or issues in the areas of waste management, water resources, land use planning, economic development, transportation and finance. Without a well-coordinated approach at each government level that integrates planning, review and approval requirements, or clear assignment of responsibilities between governments so as to eliminate duplication and overlap, brownfield redevelopment plans can stall.

Concerns about environmental contamination and liability have dominated community and developer attitudes toward brownfield redevelopment.

Brownfield redevelopment has not been a high-profile issue in many communities. There is a general lack of awareness—among all levels of government, the private sector and at the community level—of the challenges and opportunities presented by brownfield redevelopment.

Angus Shops, Montréal, Quebec: half brownfield, half industrial complex, 1978

As a result, with some important exceptions, community groups, municipal decision makers and developers in Canada have been slow to support the redevelopment of brownfield sites in their neighbourhoods. Instead, concerns about ongoing liability and responsibility for cleaning up the properties have tended to dominate the debate over the future of such sites.

Limited awareness also undermines the efforts of groups seeking to improve their own capacity to deal with brownfield issues. Potential developers, for example, are not always aware of the opportunities for redevelopment or the current best practices for remediation, and may lack the expertise to identify and make use of the best available technologies. Such shortcomings on the part of developers can, in turn, undermine the confidence of other potential participants in the redevelopment cycle—particularly potential lenders in the financial sector.

Summing Up: Overcoming Challenges

A brownfield redevelopment strategy cannot and should not target every single brownfield in Canada. The strategy must recognize that different brownfields face different challenges and different prospects. Brownfield sites in the top tier do not require special intervention. Market forces will see to their redevelopment. Severely contaminated sites in the bottom tier require special and often urgent attention for reasons of health and safety, but from a practical standpoint their cleanup falls outside the focus of this national redevelopment strategy.

The case for a national strategy for brownfield redevelopment is founded on the opportunity to cleanup and revitalize that large group of brownfields in the middle tier—those with very good prospects for redevelopment. For the present, as this section has outlined, a number of challenges, individually and in combination with one another, serve to keep such sites abandoned or idle.

The challenges to brownfield redevelopment typically reflect failures in the market. When markets fail, or are imperfect, those actions that would be expected to increase the collective national wealth do not take place. This is the case for brownfields. A number of significant market failures prevent redevelopment of brownfields, even when the redevelopment would create enough wealth and income to more than repay the cost:[14]

- lack of access to capital
- regulatory liability risk
- civil liability risk
- limited access to insurance protection

- regulatory delays
- stigma and risk perception
- lack of awareness among many key public sector and private sector groups.

A national strategy must tackle these obstacles head on, adopting specific actions targeted at overcoming specific market failures to bring these brownfields back into the marketplace and back to life in Canadian communities.

All participants in the brownfield redevelopment process, public and private sector, must participate if such a strategy is to succeed. The financial and insurance communities, for example, are essential partners to any successful strategy. However, the need for government leadership and action is particularly strong. Public sector–led initiatives are central to efforts aimed at overcoming the market barriers outlined here, in particular those of bridge financing and uncertainty around liability.

In some Canadian communities, as the following section demonstrates, such public sector action is already underway.

Aboriginal Peoples and Brownfields

The presence of brownfields on Aboriginal lands presents unique challenges. Take First Nation lands, for example:

- *the brownfield property may be on existing or former First Nation land (e.g. a First Nation reserve in an urban area, or an abandoned railway line or reserve land taken for military purposes)*
- *a First Nation may have an interest in the land on which the brownfield is located (e.g. it may have a treaty right to hunt on or near the land, or it may have indicated that it wants to select the land as part of a Treaty Land Entitlement process) or*
- *the land may be subject to outstanding title.*

In the case of First Nations, special issues that may need to be addressed include:

- *the need to conduct formal consultations with the affected/interested First Nation, which can affect project timing, information needs and intergovernmental coordination*
- *the need to involve the federal government to ensure that its fiduciary duty and constitutional jurisdiction regarding First Nations are discharged*
- *the need to involve Indian and Northern Affairs Canada in decisions affecting First Nation lands, because of the department's responsibility for the Indian Act*
- *the implications for risk management arising from the unique benefits (e.g. the exemption from taxation in certain circumstances) and constraints (e.g. the inability to secure a mortgage because the land cannot be legally put up as collateral) flowing from partnerships with First Nations regarding reserve lands*
- *the need to recognize and accommodate First Nation approaches to community decision making*
- *the possibility that property on First Nation land may be subject to different regulatory standards*
- *uncertainty over the legal status of First Nations and the effectiveness of releases for future liability given by Aboriginal communities when collective rights are involved and not every person gives an individual release.*

Additional factors may arise when brownfields involve Metis and Inuit peoples.

Given the scope and complexity of these issues, it may be impractical to include brownfields in which Aboriginal peoples have an interest within the national strategy at this time. Further research and consultation with First Nations, Metis and Inuit representatives will be required.

- regulatory delays
- stigma and risk perception
- lack of awareness among many key public sector and private sector groups.

A national strategy must tackle these obstacles head on, adopting specific actions targeted at overcoming specific market failures to bring these brownfields back into the marketplace and back to life in Canadian communities.

All participants in the brownfield redevelopment process, public and private sector, must participate if such a strategy is to succeed. The financial and insurance communities, for example, are essential partners to any successful strategy. However, the need for government leadership and action is particularly strong. Public sector–led initiatives are central to efforts aimed at overcoming the market barriers outlined here, in particular those of bridge financing and uncertainty around liability.

In some Canadian communities, as the following section demonstrates, such public sector action is already underway.

Aboriginal Peoples and Brownfields

The presence of brownfields on Aboriginal lands presents unique challenges. Take First Nation lands, for example:

- ***the brownfield property may be on existing or former First Nation land (e.g. a First Nation reserve in an urban area, or an abandoned railway line or reserve land taken for military purposes)***
- ***a First Nation may have an interest in the land on which the brownfield is located (e.g. it may have a treaty right to hunt on or near the land, or it may have indicated that it wants to select the land as part of a Treaty Land Entitlement process) or***
- ***the land may be subject to outstanding title.***

In the case of First Nations, special issues that may need to be addressed include:

- ***the need to conduct formal consultations with the affected/interested First Nation, which can affect project timing, information needs and intergovernmental coordination***
- ***the need to involve the federal government to ensure that its fiduciary duty and constitutional jurisdiction regarding First Nations are discharged***
- ***the need to involve Indian and Northern Affairs Canada in decisions affecting First Nation lands, because of the department's responsibility for the Indian Act***
- ***the implications for risk management arising from the unique benefits (e.g. the exemption from taxation in certain circumstances) and constraints (e.g. the inability to secure a mortgage because the land cannot be legally put up as collateral) flowing from partnerships with First Nations regarding reserve lands***
- ***the need to recognize and accommodate First Nation approaches to community decision making***
- ***the possibility that property on First Nation land may be subject to different regulatory standards***
- ***uncertainty over the legal status of First Nations and the effectiveness of releases for future liability given by Aboriginal communities when collective rights are involved and not every person gives an individual release.***

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3

Recent Progress on Brownfield Redevelopment

Despite the significant challenges, real progress has been made in redeveloping brownfields in Canada, the United States and Western European countries.

Canadian Initiatives

Canada's experience in brownfield redevelopment is based on a limited number of impressive initiatives in certain provinces and municipalities. The lessons from these individual efforts, though, can serve as the foundation of a more comprehensive, coordinated national strategy.

The Canadian Council of Ministers of the Environment

The Canadian Council of Ministers of the Environment (CCME) has worked to build a more coordinated and consistent approach to managing contaminated sites in Canada, including brownfields. In the 1990s, for example, the CCME:

- ***adopted 13 principles governing contaminated site liability***
- ***developed interim soil quality criteria and a protocol for updating the criteria***
- ***developed risk-based approaches to remediation***
- ***issued guidance on developing site-specific soil quality remediation objectives for contaminated sites.***

1. Legislation Promoting Brownfield Redevelopment

A wide range of federal, provincial and territorial legislation affects brownfield development in Canada, including legislation relating to environmental management, waste management, bankruptcy, liability and insurance.

Ontario and Quebec have introduced legislation specifically directed at promoting brownfield redevelopment by addressing key barriers to redevelopment:

- Ontario's *Brownfields Statute Law Amendment Act, 2001* received Royal Assent in November 2001. The first of two phases of regulations were passed in October 2002 and proclaimed to be in force as of December 1, 2002. The remaining regulations were expected to be in effect in early 2003. The act seeks to encourage brownfield redevelopment by clarifying environmental regulatory liability and providing municipalities with more flexibility in planning and financing (see box 1 for details).
- Quebec's new legislation to amend the *Environmental Quality Act* and other legislative provisions with regard to land protection and rehabilitation was passed in June 2002. Expected to come into force in March 2003, it amends the rules applying to contaminated soil management and establishes a regulatory system to clarify the roles and responsibilities of the different participants in brownfield redevelopment. It departs from the polluter-pays principle, currently reflected in the *Environmental Quality Act*, in that persons who have or have had custody of contaminated land can establish that they fall under one of three exceptions to the power of the Environment Minister to order rehabilitation work to clean up contaminants on the property. Additional protection from regulatory liability is provided in that, for all regulated contaminants, an order from the minister can be made only if the level of contamination is above the regulated use limit.

Box 1

Ontario's Brownfield Legislation: Key Provisions

The Brownfields Statute Law Amendment Act, 2001 adds to and improves the public accountability framework for a set of existing municipal planning and financing tools, and creates a new regime for addressing regulatory liability.

Planning and Financing

The legislation changes the community improvement provisions to accommodate social, economic and environmental activities. It allows municipalities:

- *greater flexibility in designating community improvement project areas*
- *to make grants or loans within such an area to help cover the costs of rehabilitating lands and buildings (including cleanup costs).*

The legislation also seeks to encourage owners of brownfield properties to undertake site cleanup by:

- *allowing municipalities to freeze or cancel the municipal portion of the property tax on contaminated sites (the Ministry of Finance may match the municipal tax treatment for the education portion of the property tax)*
- *providing municipalities with a one-year option to take ownership of land in a failed tax situation (during which time the municipality may go on the property to conduct an environmental site assessment).*

Environmental Liability

The legislation clarifies and limits environmental liability, providing greater certainty for those involved in redevelopment. Clear rules are legislated for:

- *site assessment and cleanup standards*
- *five-year liability protection from environmental orders for municipalities, secured creditors, receivers, trustees in bankruptcy, fiduciaries and property investigators*
- *liability protection from environmental orders for owners who follow the prescribed site assessment procedures and file a record-of-site condition stating that a site meets the appropriate standards*
- *quality assurance through mandatory use of certified site-cleanup professionals, mandatory filing of a record-of-site condition to a publicly accessible registry, acceptance of risk assessments by the Ministries of Environment and Energy, and an enhanced auditing process.*

[illegible]

An advisory panel in British Columbia is reviewing how to make the province's management of contaminated sites more effective and efficient. The panel, established by the Minister of Water, Land, and Air Protection, is looking at issues such as whether current approaches to liability may have made parties reluctant to invest in or redevelop contaminated lands in the province, resulting in the creation of numerous brownfield sites.

The panel is also expected to provide recommendations on streamlining the approvals process for contaminated sites management, funding contaminated sites administration, and ensuring standards are fair and consistent with those of other jurisdictions.

The panel's interim report was issued in September 2002. One of its recommendations suggests the provincial government should participate actively in the NRTEE's national brownfield redevelopment strategy. Legislative changes may be introduced in the spring of 2003.

2. Incentive Programs for Brownfield Redevelopment

Federal Government

In 2000, the federal government established the Green Municipal Enabling Fund, administered in partnership with the Federation of Canadian Municipalities (FCM). In the 2002 budget, the endowment to FCM was doubled to $250 million, of which a small portion is allocated for brownfields. The fund can provide grants of up to $100,000 for community brownfield inventories and assessments of development and policy options, but does not cover cleanup costs for brownfield redevelopment.

Provincial/Territorial Governments

Quebec is the only province that has a funding incentive program for brownfield redevelopment. Its Revi-Sols program was launched in 1998 to:

- rehabilitate contaminated sites in the province
- improve the quality of the environment and the health of residents
- reduce urban sprawl
- increase economic activity
- promote the use of treatment technologies for decontaminating soils and groundwater.

Revi-Sols provides grants to communities to cover the costs of studies (including environmental assessments) leading to rehabilitation work, as well as the actual costs of rehabilitation work. Proponents eligible for grants include private developers, municipalities or a combination of the two. Eligible sites must be intended for development after rehabilitation, that is, grants are provided only if there is an actual development project. The Quebec government will fund 50 percent of the eligible costs of the preparatory studies and cleanup of eligible brownfield sites, with an additional 20 percent contribution for remediation work that includes treatment of contaminated soils, materials mixed with soils, and groundwater.

The program has been well utilized and has resulted in significant benefits in terms of land area rehabilitated, the level of private sector investment, and increased property tax revenues (see box 2 for details).

Municipalities

Municipal governments in Canada have demonstrated their capacity to be the "on the ground" leaders in developing and delivering brownfield redevelopment

Box 2

Results of Quebec's Revi-Sols Program

Phase I of the Revi-Sols program targeted the cities of Montréal and Québec, where $40 million was earmarked to help finance the study and rehabilitation of contaminated sites between 1998 and 2003 ($30 million for Montréal and $10 million for Québec City).

Phase I generated so much interest and uptake that the Quebec government launched Phase II (2000 to 2005) with $50 million aimed at all other urban municipalities in the province. The province's $90 million will be matched by a contribution of $90 million from the private and municipal sectors, resulting in a total of $180 million directed to the rehabilitation of contaminated sites in the province over a seven-year period.

In its first five years, the Revi-Sols program funded the cleanup and redevelopment of 153 projects (101 in Montréal, 22 in Québec and 30 in other municipalities) with a total land area of nearly 220 hectares.

In Montréal, the Revi-Sols program has resulted in a $25.6-million increase in municipal property tax revenues and 3,400 new housing units. In the other municipalities, the program has resulted in a $13.4-million increase in municipal property tax revenues.

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initiatives, forging community partnerships involving governments and the private sector. For example:

- In Ontario, brownfield redevelopment activities are underway in many communities as a result of the promotion and capacity-building activities of the provincial government in recent years. Ontario's brownfield legislation is expected to unlock activity on some of the more challenging sites across the province. Hamilton's leading-edge Environmental Remediation and Site Enhancement (ERASE) Plan represents the first and largest comprehensive brownfield redevelopment plan in Canada (see box 3 for details).
- Major brownfield redevelopment projects have been undertaken in Moncton, Vancouver and Calgary.
- The success of Quebec's Revi-Sols program has been based on partnerships between the municipal and provincial governments and the private sector (see box 2).
- The Montréal Centre of Excellence in Brownfields Rehabilitation is an innovative partnership between the City of Montréal, the Province of Quebec and the federal government (see box 4 for details).

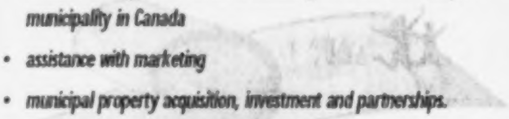
Box 3

Hamilton's ERASE Plan

The City of Hamilton has been working on redeveloping brownfields in its older industrial neighbourhoods and waterfront for several years. In 1997, an Industrial Redevelopment Task Force, including local government, business and community representatives, identified the brownfield challenges facing the city and the priority sites for redevelopment.

The City prepared a community improvement plan, the Environmental Remediation and Site Enhancement (ERASE) Plan, to promote the cleanup and reuse of brownfield properties in a 3,400-acre older industrial area. The City began consultations with the Province of Ontario on the use of financial incentives to stimulate redevelopment, and received provincial approval in mid-2001. In its initial phase, the ERASE Plan offers:

- ***a grant program to assist with the study and cleanup of brownfields, financed through tax increment financing*—a first for a major municipality in Canada***
- ***assistance with marketing***
- ***municipal property acquisition, investment and partnerships.***



Results in the first year of the ERASE Plan include:

- ***redevelopment of 11.3 acres of industrial land***
- ***construction and refurbishing of 228,000 square feet of building space***
- ***leveraging of $15 million in private investment through $1 million in city grants***
- ***an estimated $400,000 a year increase in revenues from property taxes.***

Over the next few years, the City hopes to expand the range of incentives, build more partnerships with local groups, and encourage direct support from the provincial and federal governments.

Annex 2 provides details on several recent brownfield redevelopment success stories in Canadian communities.

Private Sector Insurance Companies

A number of larger private insurers are offering policies designed specifically to assist in contaminated and brownfield site cleanup. Among these policies are:

- the cleanup cost cap, which protects developers when cleanup costs exceed the estimates because of the discovery of contaminants not evident when the cleanup was designed and/or because of changes in regulatory requirements
- pollution liability, which provides coverage against the following types of costs: third-party claims for site remediation, bodily injury and property damage arising from a pollution condition; remediation of newly released or preexisting contamination on the insured's property; and legal defence costs
- secured creditor coverage, which reimburses financiers for lost loan payments if a borrower defaults, and also compensates them for collateral value loss arising from a pollution condition.

There are other policies and combinations of policies, depending on the insurer, and most can be tailored to the specific needs of the developer/project. Limits have increased substantially, with coverage of up to $200 million now available from a single carrier. However, all these policies, regardless of the carrier or dollar limit, have a time limit within which claims must be made. After that time, there is no protection, though the liability risk continues. Although these policies can be offered on any size of brownfield, the price

Box 4

Montréal Centre of Excellence in Brownfields Rehabilitation

The Montréal Centre, a partnership of the City of Montréal, the Province of Quebec and the federal government, is a not-for-profit organization that invests in brownfield redevelopment technology demonstration projects in cooperation with industrial partners and technology developers. Since it was established in 1997, the Montréal Centre has managed $6 million in demonstration projects involving a wide range of technologies as well as risk assessment. The Centre has invested another $2.4 million in a technology platform and showcase located on the Lachine Canal, the oldest industrial area of Montréal.

for some smaller projects is prohibitive due to the fixed component of underwriting costs for the insurer.

Lessons from Canadian and International Experience

Over the past decade, significant progress has been made in overcoming the challenges posed by brownfields in Canada, the United States and Europe. Governments have established legislative frameworks and financial incentive programs to encourage redevelopment and build partnerships (see Annex 4 for more details on the brownfield redevelopment policies and initiatives of five industrialized countries).

This experience suggests that there are several key factors to launching and implementing a successful brownfield program:

Public policy: Where government agencies have made a concerted effort to harmonize jurisdictional differences and improve certainty through legislation, policy statements or guidance initiatives, more projects have moved forward with fewer complications.

Strategic public investments: The public sector has played a key role in making available financial incentives that bridge financing gaps, particularly since few private sector finance companies view brownfield projects as attractive or viable in the early stages of evaluation. Tax incentives and direct public funding have been strategic investments, levering private investment capital and creating jobs. All levels of government have had a role to play in this area. Creating a transparent and accountable delivery system to distribute funds has been vital to the success of public sector assistance initiatives.

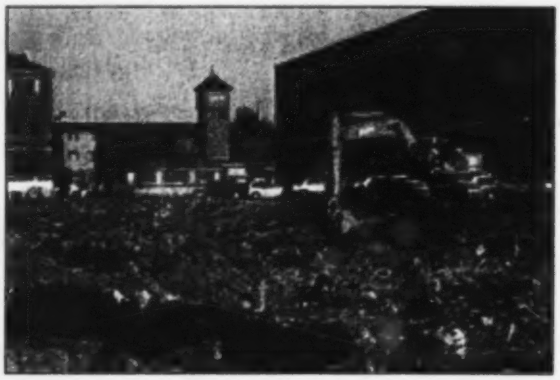
Atlantic RBCA: A Model of Regional Cooperation

Under the Atlantic Risk-Based Corrective Action (Atlantic RBCA) program, Nova Scotia, New Brunswick, Prince Edward Island and Newfoundland and Labrador have joined forces to promote a risk-based approach to cleaning up sites contaminated by petroleum.

Each participating province maintains its own regulations governing environmental protection. When a spill occurs or contamination is discovered, the provincial department of environment is advised and an investigation is initiated. A standard sequence of RBCA activities is performed for all human health and ecological risk/exposure assessments.

The approach seeks to provide greater assurance for all parties—community residents, industry, investors and local governments—that appropriate standards are being applied, that the cleanup is being carried out properly and that the environment is protected.

Angus Shops, Montreal, Quebec: Before site cleanup, 1998



Cleanup at Angus Shops site, 1998

Community involvement to sustain momentum: Education and training have helped build community involvement and capacity for action on brownfields. Behind most successful projects has been an informed local community that is engaged in the issues and prepared to examine land use options, cleanup methods and site design. Informed and well-trained municipal and state or provincial regulatory officials also have been able to address the special challenges and opportunities of brownfields in their area.

Leadership: Leadership, at all levels, has often proven to be the most critical factor in the success of a brownfield redevelopment project. Champions of brownfield redevelopment have included local citizens, landowners, politicians and business leaders. In the United States, for example, the consistent leadership of mayors and governors has been essential in moving brownfield redevelopment onto the public policy agenda, testing innovative solutions and sustaining momentum.

Managing Federally Owned Contaminated Sites

New policies related to the management of federally owned contaminated sites were issued by the federal Treasury Board in 2002. The Contaminated Sites Management Policy requires all federal departments and agencies (with a few exceptions) to:

- make best possible efforts not to contaminate federal real property
- be responsible for the remediation of negative environmental effects resulting from departmental or agency actions
- address the most-affected sites first—priority determined by the Canadian Council of Ministers of the Environment (CCME)'s National Classification System
- where remediation is the appropriate management response, remediate sites to a level consistent with the requirements for its current or intended [illegible] use as determined by the CCME
- prepare contaminated site management plans within one year of the Treasury Board's approval of the Management Policy.

Under the Policy on Accounting for Costs and Liabilities Related to Contaminated Sites, federal departments and agencies must:

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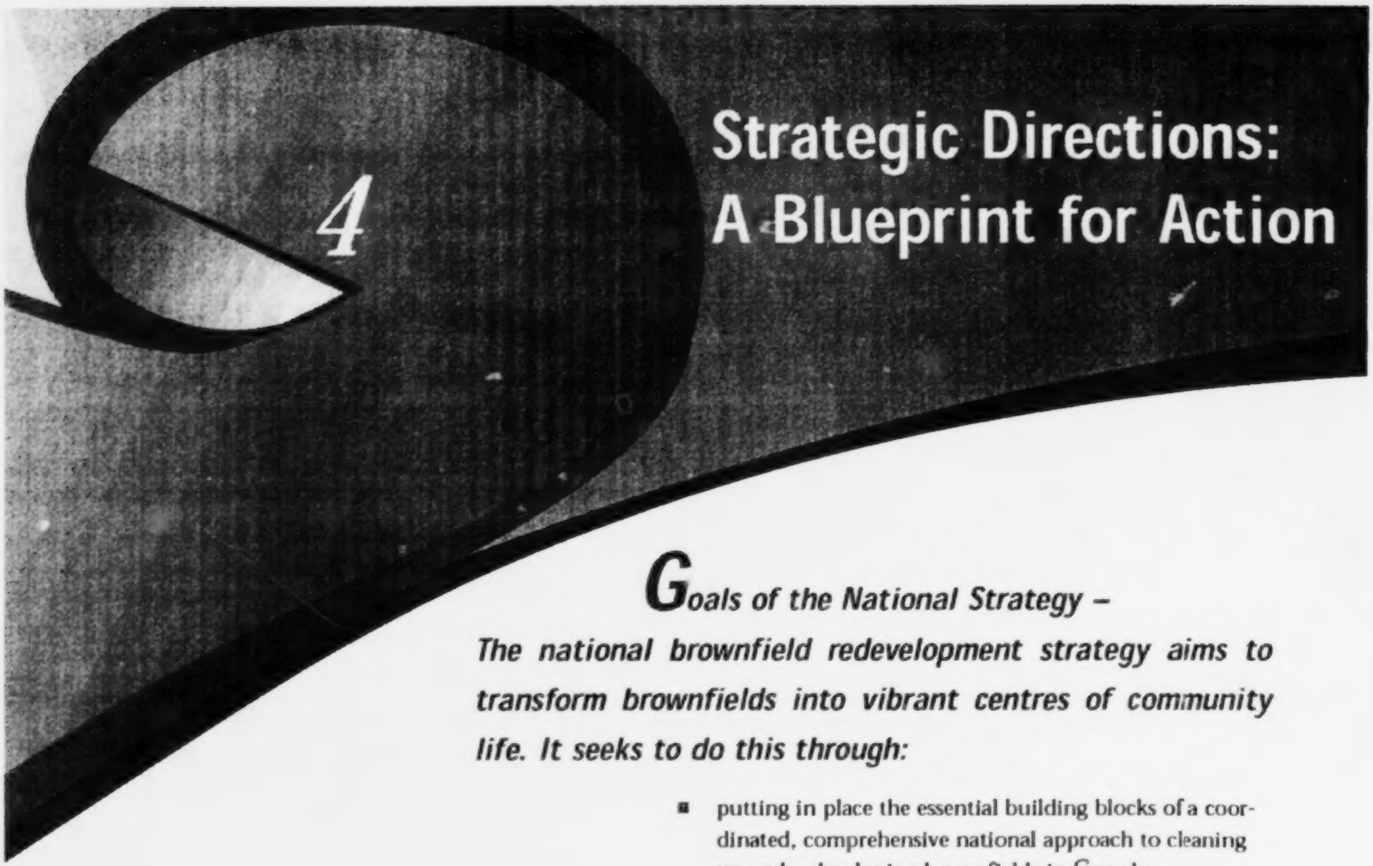

4

# Strategic Directions: A Blueprint for Action

Goals of the National Strategy –

The national brownfield redevelopment strategy aims to transform brownfields into vibrant centres of community life. It seeks to do this through:

- putting in place the essential building blocks of a coordinated, comprehensive national approach to cleaning up and redeveloping brownfields in Canada
- building on recent initiatives in several provinces and communities to promote brownfield redevelopment across the country as a practical tool for sustainable development
- engaging the full spectrum of public, private and community interests involved in community development
- addressing the priority challenges to brownfield redevelopment through a mix of policy instruments targeted at specific market failures
- focusing efforts on the middle tier of brownfields, where strategic public sector initiatives are needed to achieve redevelopment.

The strategy proposes a blueprint for action in three critical areas:

- Strategic Direction 1: Applying strategic public investments to address upfront costs
- Strategic Direction 2: Establishing an effective public policy regime for environmental liability and risk management
- Strategic Direction 3: Building capacity for and community awareness of brownfield redevelopment.

The recommendations represent a package of complementary and mutually reinforcing initiatives to address the key market failures hindering brownfield redevelopment in Canada. Development of these recommendations was guided by an evaluation of policy instruments commissioned by the NRTEE (see Annex 5).[15] Table 1 summarizes the recommendations under each of the three strategic directions, indicating which levels of government bear primary responsibility for implementing each recommendation.

Outside the three strategic areas, the strategy also includes recommendations that do not target specific market failures; rather they address the need for public sector leadership in advancing the redevelopment of brownfields. These "leadership recommendations" are dealt with in the section "Moving Forward."

Table 1 Summary of National Strategy Recommendations

Strategic Direction	Recommendations	Responsibility
1. Applying strategic public investments to address upfront costs	1.1 Implement tax system changes to promote brownfield redevelopment	Federal Provincial/Territorial Municipal
	1.2 Remove liens and tax arrears against qualifying brownfield sites	Federal Provincial/Territorial Municipal
	1.3 Provide mortgage guarantees for qualifying brownfield sites	Federal
	1.4 Provide revolving loans for qualifying brownfield sites	Federal Provincial/Territorial Municipal
	1.5 Provide grants for qualifying brownfield sites	Federal Provincial/Territorial Municipal
2. Establishing an effective public policy regime for environmental liability and risk management	2.1 Allow binding contractual allocation of liability	Provincial/Territorial
	2.2 Provide for termination of regulatory liability	Provincial/Territorial
	2.3 Provide for termination of civil liability after a limitation period	Provincial/Territorial Federal
	2.4 Create an insurance fund for post-liability termination claims	Provincial/Territorial Federal
	2.5 Apply site-specific assessment and approvals regime	Provincial/Territorial Federal Municipal
	2.6 Provide for regulatory approvals of remediation	Provincial/Territorial
3. Building capacity for and community awareness of brownfield redevelopment	3.1 Increase capacity to undertake brownfield redevelopment projects	Federal Provincial/Territorial Municipal
	3.2 Facilitate the demonstration of innovative environmental technologies and remediation processes	Federal Provincial/Territorial Municipal
	3.3 Raise awareness of the benefits of brownfield redevelopment	Federal Provincial/Territorial

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	2.3 Provide for termination of civil liability after a limitation period	Provincial/Territorial Federal
	2.4 Create an insurance fund for post-liability termination claims	Provincial/Territorial Federal
	2.5 Apply site-specific assessment and approvals regime	Provincial/Territorial Federal Municipal
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	3.2 Facilitate the demonstration of innovative environmental technologies and remediation processes	Federal Provincial/Territorial Municipal
	3.3 Raise awareness of the benefits of brownfield redevelopment	Federal Provincial/Territorial

The strategy is intended as a tool for all governments in Canada. However, it is important to note that not every recommendation will apply equally to every provincial or municipal government. In some cases, one or more provinces may already have introduced measures consistent with the objectives of a particular recommendation, even if the actual approaches differ from what is proposed here.

Strategic Direction 1: Applying Strategic Public Investments to Address Upfront Costs

The recommended actions under Strategic Direction 1 seek to:

- apply strategic public investments, by removing tax impediments and providing loans, grants and mortgage guarantees, to lever private capital and overcome the barriers in the market to accessing capital for the early stages of redevelopment
- establish an effective mechanism through which the federal, provincial/territorial and municipal governments can provide financial incentives to qualifying brownfield redevelopment projects.

Publicly funded financial incentives represent a strategic investment in the future of brownfield sites and their surrounding communities.

The lack of capital in the early stages of brownfield redevelopment—for the upfront costs of site assessments and cleanup—is a significant obstacle to brownfield redevelopment. Financial incentives focused on overcoming this "bridge financing" problem are a central element of any successful national brownfield strategy.

Public investments in bridge financing can put brownfields and greenfields on the same "level playing field" by eliminating the upfront cost disadvantages of brownfield redevelopment. Public investments can lever far greater amounts of private sector capital for redevelopment projects, resulting in substantial economic benefits in the form of new jobs, new businesses and more tax revenue. Public investments at this crucial stage can help restore environmental quality, reduce threats to human health and contribute to community revival.

No single type of financial assistance can address all of the problems facing brownfield properties. Different policy instruments will be needed for different participants and different brownfield sites.

1.1 Implement Tax System Changes to Promote Brownfield Redevelopment

Recommendation

That the federal government amend Sections 18 and 20(1) of the *Income Tax Act* to allow remediation expenses to be treated as a deductible expense in computing income.

That provincial governments permit the deductions for remediation expenses in the calculation of provincial income taxes.

That the federal government amend the *Income Tax Act* to create a Brownfield Redevelopment Current Deduction and Investment Tax Credit similar to the Scientific Research and Experimental Development Program currently provided for in Sections 37 and 127 of the act.

That provincial governments with established scientific research and/or experimental development incentive programs extend the application of these programs to qualifying expenditures for remediation work at brownfield sites.

Rationale

The proposed tax treatment:

- makes it possible to deliver funds at early project stages, where capital market imperfections are higher because of the unresolved environmental status of the land
- provides developers with greater certainty of receiving the funds, enabling them to reduce the costs of delays and incorporate the benefits into their project planning; this in turn increases the number of projects that can clear initial cash and feasibility hurdles
- is a cost-effective means of delivering the financial assistance that is necessary to achieve development of brownfield properties.

However, the tax system lends itself to simple rules that may apply to a wider group of recipients than intended. Applicability criteria must therefore be designed to reduce the likelihood of publicly funded financial benefits going to brownfields in the top tier, which would have been developed in any event.

Discussion

The corporate tax system has traditionally been an important industrial policy instrument in Canada. Investment tax credits, accelerated depreciation and other sorts of exemptions, deductions and credits have been widely used to encourage various corporate activities.

Well-designed tax incentives can be an effective way to encourage the cleanup and redevelopment of brownfield sites. Potential Canadian tax incentives focused on brownfield sites would have objectives similar to traditional tax incentives aimed at promoting economic development—overcoming capital market imperfections and channelling economic activity to achieve broad public benefits.

A tax-based system generally provides an efficient and equitable means of providing assistance to a wide range of businesses. Compared with other forms of financial assistance, such as grant programs, tax changes can be more directly accessed by companies, normally require less administration, and are subject to the normal standards of tax accountability and compliance.

The removal of tax-based impediments to environmental cleanup would help brownfield sites better compete economically with greenfield sites. The tax changes would also provide a cash-flow cushion for companies to help promote development, because capital raised from investors or borrowed from creditors could be targeted directly to remediation and redevelopment rather than being used to cover tax obligations.

Under current tax provisions, funds spent on remediation at brownfield sites typically have to be treated as an upfront capital cost rather than an expense deductible against current annual income. Under the proposed incentive, any party incurring qualifying remediation expenditures would be entitled to deduct these amounts as expenses in computing income. This would apply at both the federal and provincial levels. (The expenditures could be identified as either payments or capital costs. The deduction could be claimed in the year the cost is incurred or it could be carried forward without limitation to subsequent years.)

Another option available to the federal government is to create a Brownfield Redevelopment Current Deduction and Investment Tax Credit to encourage greater private sector participation in brownfield redevelopment. With this approach, qualifying remediation costs would be classified as deductible business expenses which could be carried forward and would be eligible for an investment tax credit. Such an incentive could be valuable to a party that does not earn positive taxable income in a year in which it incurs qualifying expenditures. If the tax credit were claimed, qualifying expenditure deductions made in computing income would then be reversed.

To promote greater on-site soil remediation, a higher deduction could be provided for in situ remediation than for cleanup measures involving the removal and transport of contaminated soil to another site. This would encourage active cleanup of contaminated soil rather than relocation of the contamination problem.

Appropriate controls would need to be introduced to ensure that financially viable projects do not benefit unduly from using the incentive as a subsidy.

The proposed Brownfield Redevelopment Current Deduction and Investment Tax Credit is similar in many respects to the Scientific Research and Experimental Development (SR & ED) program currently provided for in Sections 37 and 127 of the *Income Tax Act.* Seven provinces currently sponsor similar SR & ED incentive programs that deliver additional benefits to qualifying projects carried out in their jurisdictions. To encourage brownfield redevelopment projects, the provinces should extend their SR & ED incentive programs to cover remediation work on brownfield projects in their jurisdictions. In addition, qualifying remediation expenditures should generate refundable tax credits at the provincial level (whether or not incurred by a small business corporation).

1.2 Remove Liens and Tax Arrears Against Qualifying Brownfield Sites

Recommendation

That the federal and provincial governments jointly develop principles and criteria for removing federal and provincial liens and tax arrears in specific situations.

That the federal and provincial governments amend their applicable bankruptcy and corporations legislation to ensure that when a trustee in bankruptcy quitclaims a property owned by a bankrupt compa-

ny, then the property vests in the Crown; if the company is incorporated under the *Canada Business Corporations Act*, then the property vests in the Crown in right of Canada; if the company is provincially incorporated, the property will vest in the province.

Rationale

Removal of liens and tax arrears:

- reduces upfront costs to brownfield developers and provides greater certainty of funds to developers at early project stages (e.g. during purchase negotiations), when it is difficult to obtain regular financial assistance
- represents a highly cost-effective approach to delivering financial assistance to brownfields, because it can be delivered for free (except for administration costs) to sites that may be of zero or very little worth to the government in the absence of any redevelopment.

Discussion

Many brownfield properties are delinquent in their property tax payments to the point where they are subject to a ***municipal tax sale****. However, such properties are often difficult to sell, because of deteriorated conditions, known or perceived site contamination, and the anticipated high costs of remediation. If left vacant, these sites typically are prone to vandalism and become a burden to the municipal government. Although many of these sites do not pay municipal taxes, they do draw heavily upon municipal resources in the form of police, fire and inspection services, as well as enforcement and infrastructure maintenance services.

Often, such properties are also encumbered by outstanding Crown ***liens****, both federal and provincial, which cannot be cancelled through a municipal tax sale. The combination of back taxes and Crown liens can render a local redevelopment proposal unfeasible. The prior agreement to remove all or part of these liens could be a deciding factor in the financial viability of a potential brownfield redevelopment project. This form of incentive has been offered in the past on an ad hoc basis by all levels of government. (The actual removal of the lien or tax arrears should not be finalized until the completion of cleanup, to prevent a situation where a lien is forgiven and then no redevelopment takes place.)

Some provinces are considering developing a set of criteria and protocols to qualify brownfield redevelopment projects for removal of all provincial liens in the event of investor interest. This process would be more effective if clear and consistent criteria and processes were established across all governmental jurisdictions, so that developers and purchasers would know whether a particular site, wherever it might be located, was eligible for lien removal. In particular, a federal program to remove liens against affected properties could be linked through a federal-provincial agreement that, among other things, standardizes criteria and protocols.

Changes to federal and provincial legislation are also needed to address the special question of brownfield sites that are caught up in bankruptcy proceedings. The courts have interpreted section 20 of the federal *Bankruptcy and Insolvency Act* to mean that when a trustee in bankruptcy ***quitclaims**** a property, the property returns to the bankrupt company. However, this in effect creates an orphan site, with no entity in control of the property—a development that can have dramatic and even dangerous consequences.

To ensure that there is some entity in control of the property when a trustee in bankruptcy quitclaims a property, the *Bankruptcy and Insolvency Act*, the *Escheats Act* and the federal *Canada Business Corporations Act*, as well as the provincial equivalents, will need to be amended to state that, under these circumstances, the property vests in Her Majesty in right of Canada, or the province, as appropriate. It is also vital that the designated ministry receive the necessary funding to manage these sites until remediation.

(It should be noted that removal of the lien does not release the original debtor from the amount owing to the Crown. Similarly, the vesting of property in the right of the federal or provincial government does not release the original polluter from liability, nor, with proper safeguards, would it create any additional liability for the Crown).

1.3 Provide Mortgage Guarantees for Qualifying Brownfield Sites

Recommendation

That the Canada Mortgage and Housing Corporation provide, under its current mandate, mortgage guarantees for brownfield redevelopment projects providing housing.

That the federal government expand the mandate of the Canada Mortgage and Housing Corporation to allow the corporation to provide mortgage insurance for residential, commercial or industrial development for qualifying brownfield sites.

Rationale

Government mortgage guarantees:

- target the market failure of lack of access to capital from conventional sources that arises when lenders have concerns over the reduced value of properties and collateral due to contamination
- complement the tax changes and lien relief proposed in recommendations 1.1 and 1.2, because the impact of mortgage guarantees on capital market imperfections is likely to be in the post-remediation stage, when the environmental status of the land is clear enough to attract loan financing from conventional sources.

Discussion

Government mortgage guarantees have been one of the principal instruments used to encourage brownfield redevelopment in the United States. In Canada, the Canada Mortgage and Housing Corporation (CMHC) has acted as a vehicle to facilitate higher-risk mortgage financing, as well as direct lending in certain circumstances.

To encourage Canadian banks and other financial institutions, such as insurance companies, to get involved in funding brownfield redevelopment, CMHC should, without altering its existing legislative mandate under the *National Housing Act*, provide mortgage insurance for brownfield redevelopment sites—providing that the purpose of the redevelopment is to provide housing. Mortgage guarantees could be provided via programs similar to those that currently exist under CMHC and the federal Small Business Loan program.

Expanding the mandate of CMHC to cover residential, commercial and industrial development of brownfield sites would give even more impetus for private sector action. This type of mortgage insurance could help encourage traditional lenders to provide additional loan capital for brownfield developers. Only minimal government funding would be needed, as CMHC assistance would remain a self-sustaining insurance program with fees charged to those developers requiring this type of insurance.

Brownfield redevelopment sites are unlikely to have a higher default rate than the property portfolio for which CMHC currently provides mortgage insurance. To the extent that traditional lending institutions agree to participate in such public initiatives, they will nevertheless still rely on their own due diligence investigations to ascertain the feasibility of proposed projects. Where private sector support is not forthcoming, CMHC would not be prevented from lending directly.

1.4 Provide Revolving Loans for Qualifying Brownfield Sites

Recommendation

That the federal, provincial and municipal governments establish brownfield revolving loan fund programs to make low-interest loans available to both private and public parties.

That all levels of government establish qualifying criteria to target loans to brownfield redevelopment projects that contribute positively to the economic, social and environmental benefit of the local community and to its revitalization.

Rationale

Revolving loan funds:

- are particularly well suited for the middle tier of brownfields that are only marginally unprofitable to private developers, because they deliver a modest level of financial assistance in the form of reduced interest rates while addressing capital market imperfections that prevent some projects from accessing any form of financing

- complement the proposed mortgage guarantees at the federal level (recommendation 1.3), by allowing for substantial incorporation of regional and local decision making and application of local knowledge on a targeted, project-by-project basis, thereby enabling loans to be extended to areas where primary lenders might not reach.

However, a revolving loan program must be well designed and focused in order to avoid delays in project-by-project approval by multiple government partners—such delays could act as a disincentive to developers.

Discussion

Revolving loan funds can be a powerful and flexible financial tool for promoting brownfield redevelopment in both urban and rural areas. (Such funds are called "revolving" because they use loan repayments to make new loans for the same authorized purposes.) This approach has been used successfully, for example, by the Toronto Atmospheric Fund (TAF). TAF, established in 1992 with an endowment of $23 million from the City, uses revolving loans (and grants) to finance local initiatives that support its mandate.

An essential component of the Brownfields Economic Redevelopment Initiative of the United States has been the creation of cooperative agreements with states and municipalities to capitalize brownfield cleanup revolving loan funds. Each loan fund pilot project is funded with up to US$1 million over five years. Revolving loan funds enable states and municipalities (as well as specified coalitions) that have shown leadership in local redevelopment programs to make low-interest loans to public and private applicants to facilitate the cleanup and redevelopment of brownfield properties.

Revolving loan programs of this type in Canada would greatly encourage the upfront remediation work needed to trigger action on brownfield properties, and would help fill the gap created when financial institutions refuse to finance remediation costs. They could support municipalities and their private sector partners that demonstrate their commitment and readiness to act. They could also help fund brownfield redevelopment efforts in rural areas, through funds available from the repayment of initial loans made to urban brownfield sites.

Revolving loan fund programs could be administered by the Federation of Canadian Municipalities, CMHC, the Business Development Bank of Canada, or qualifying provincial or municipal agencies.

Qualifying criteria for the loans would need to be sufficiently flexible to reflect local circumstances. In general, qualifying projects should demonstrate the potential for one or more of the following benefits:

- economic benefits, such as the creation or retention of employment opportunities, establishment of new businesses, and increases in municipal property tax revenues
- social benefits, such as neighbourhood or community renewal and revitalization, and reduced pressure for urban sprawl into greenfield areas
- environmental benefits, such as restoration of environmental quality (air, water or land), elimination or reduction of threats to human health and safety, and conservation of biodiversity through the protection or preservation of wildlife habitat.

Consideration should also be given to making a percentage of the loan forgivable in certain specific circumstances, as has been successfully done in a number of U.S. states.

1.5 Provide Grants for Qualifying Brownfield Sites

Recommendation

That the federal, provincial and municipal governments cooperate to provide a comprehensive grant funding program for qualifying brownfield sites.

That all levels of government jointly establish qualifying criteria to target grants to brownfield redevelopment projects that contribute positively to the economic, social and environmental benefit of the local community and to its revitalization.

That grant funding be available only to municipalities and non-profit organizations.

Rationale

Grants:

- complement the other financial incentive recommendations, because they can target those brownfields that require substantial, direct financial assistance to realize their potential

- are the most cost-effective and flexible method for delivering a significant volume of financial assistance, because the amounts can be tailored to each project's needs
- avoid the potential risk involved in delivering assistance through the tax system, where the benefits could be enjoyed by a wider group of recipients than intended
- provide greater certainty to developers in their project planning
- can be administered jointly with revolving loan programs, so that project evaluation and negotiations need only be carried out once.

Discussion

As demonstrated by the Revi-Sols program in Québec, grant funding can be an important tool for promoting brownfield redevelopment, particularly where brownfield sites have generated little interest or support from the private sector.

Establishing qualifying criteria will ensure that public funding is being utilized in the most effective manner to overcome market conditions and lever private capital. Qualifying criteria should ensure that these forms of public funding are not provided to properties that would be redeveloped in any case.

As with revolving loans (recommendation 1.4), criteria for grants would need to be sufficiently flexible to reflect local circumstances.

Projects that qualify for grants can stimulate much-needed site assessment initiatives and the wider adoption of market-ready "green remediation technologies." They could also promote sustainable design elements within land use planning projects. This approach would help integrate the objectives of restoring and redeveloping sites while sponsoring more innovative approaches to municipal land use planning and economic development initiatives.

Current funding models (such as the Federation of Canadian Municipalities' Green Municipal Enabling Fund) should be reviewed, adapted or expanded to accommodate the specific funding needs of brownfield redevelopment. A new grant funding program, involving all levels of government, could be established with criteria for site assessment and revitalization demonstration projects. The criteria should limit the availability of grants to municipalities and non-profit organizations (including properties remediated under the control of these entities) to target those sites where remediation is not market-driven. (For example, a municipality may want to remediate a brownfield site to create a park or build a swimming pool.) However, grant funding could also flow through a municipality or non-profit organization to eligible private sector projects.

A new neighbourhood on the former Angus Shops site in Montréal, 1999

Grant programs generally require a greater degree of administration and flexibility than other financial incentives, and are more effective when delivered to a small number of entities for specific projects.

The proposed grant funding program could be developed in consultation with key organizations such as the Federation of Canadian Municipalities, provincial municipal associations, the Canadian Bankers Association, CMHC, the Canadian Urban Institute and the Urban Development Institute.

Strategic Direction 2: Establishing an Effective Public Policy Regime for Environmental Liability and Risk Management

The recommended actions under Strategic Direction 2 of the strategy seek to:

- provide all participants in brownfield redevelopment with a clear, fair and consistent public policy regime to bring greater certainty and efficiency to questions of liability and risk management
- promote a coordinated effort on liability and risk management among all levels of government.

Effective liability protection for participants in brownfield redevelopment is a cornerstone of a successful long-term national strategy for revitalizing Canada's brownfields.

Uncertainty over liability affects every participant in brownfield redevelopment, from current owners and developers, to lenders, insurers and municipal governments. Until all governments recognize and address this challenge in a coordinated and fair manner, liability concerns will be enough to stall progress on too many of the country's brownfield sites.

2.1 Allow Binding Contractual Allocation of Liability

Recommendation

That provinces and territories establish legislation permitting binding contractual allocations of regulatory and civil liability among parties relevant to a brownfield site, upon filing of adequate financial assurances to cover site remediation costs.

Rationale

These provisions:

- directly address the market failures stemming from "regulatory and civil liability risk," including downstream failures in the capital markets and insurance markets
- complement and reinforce other recommendations relating to regulatory and civil liability (recommendations 2.2, 2.3, 2.4)
- provide a more controlled framework for future risk, enabling developers to better quantify the financial implications and spread risk through the usual mechanisms of insurance, reinsurance and diversified ownership; the result is lower initial costs to private brownfield developers and redevelopment of more brownfields.

However, the measure would need to be designed to avoid an unintended bias of behaviour toward pollution and cleanup rather than pollution prevention. For example, a polluter might escape liability by capitalizing a shell company (a company that exists only "on paper" and that possess no appreciable resources) to do cleanup and then transferring the land and any future liability to that company.

Discussion

Landowners who sell brownfield properties remain open to liability claims despite the sale of such properties. Consequently, brownfield landowners often will not sell or remediate sites because the magnitude of potential liabilities and associated costs exceed potential returns on a sale.

To help put brownfields back into the marketplace, a vendor should be allowed to sell or transfer liability upon selling a brownfield property to an arm's-length purchaser. When liability is transferred along with the land, the party that stands to benefit from a future change in land use after remediation—the developer—takes on the liability. While parties can currently allocate liability by means of a contract, such allocations are only binding between the contracting parties. The allocation of liability is not recognized by courts in liability suits with respect to parties outside the contract (i.e. regulators and third parties).

Parties to a brownfield transaction should be able to designate, by contract, the party that will be responsible for responding to civil and regulatory environmental liabilities associated with a site and its redevelopment. This recommended approach would enable all parties to more effectively manage liabilities connected to brownfield sites, whether these are liabilities arising in the context of the redevelopment project itself or subsequent liability claims that may be advanced until expiration of all applicable *limitation periods**.

In order to ensure the protection of innocent persons, the legislation should recognize contractual allocations of liability only if the party assuming the liability lodges sufficient financial assurances to undertake remediation. Whether in the form of a statement of adequate net worth, security or liability insurance, such financial assurances would preclude situations where vendors intentionally sell to shell companies, thereby freeing themselves of liability while stranding liability with an entity that is in no position to pay out legitimate claims arising from remediation.

Implementation of this recommendation to permit contractual allocation of liability may require a shift in approach on the part of some provincial governments.

2.2 Provide for Termination of Regulatory Liability

Recommendation

That provinces and territories establish legislation providing for clear and unequivocal termination of all on-site and off-site regulatory liabilities upon issuance of regulatory approval of remediation, subject only to specified reopeners or fraud.

That applicable federal environmental protection legislation be amended to provide for federal government acceptance of the approvals process implemented by a province or territory, thereby exempting the property from federal liability.

That provinces and territories establish legislation providing for the registration on title of any right to regulatory liability termination or allocation.

Rationale

These provisions:

- directly address the market failures stemming from "regulatory liability risk," including downstream failures in the capital markets and insurance markets
- provide a more controlled framework for future regulatory risk, enabling developers to better quantify the financial implications and spread risk through the usual mechanisms of insurance, reinsurance and diversified ownership; the result would be lower initial costs to private brownfield developers and redevelopment of more brownfields.

However, there would be a need to include measures to protect innocent third parties, such as purchasers and future occupants.

Discussion

Allowing parties to allocate liability would not, on its own, be enough to overcome the redevelopment obstacles posed by liability issues. All levels of governments should adopt legislation that provides for the clear and unequivocal termination of all on-site and off-site regulatory liabilities upon the issuance of regulatory approval of remediation (reversible only in circumstances of emergency and fraud, or if the owners or their successors do not obey any conditions attached to the property). Protection from liability should extend to all past, present and future title holders, occupants, polluters, developers, lenders and approving agencies.

Terminating regulatory liability upon remediation would enable the parties involved in redeveloping a brownfield property to determine more precisely the risks associated with development and to quantify the cost of compliance for financial planning purposes. In the event that circumstances leading to regulatory liability arise, third parties would have recourse to an insurance fund (see recommendation 2.4).

In the United States, some jurisdictions have adopted the practice of granting liability protection subject to defined *reopeners** (circumstances where liability termination is reversed). Reopeners should be permitted for changes in land use, though this would be the responsibility of the new owner and not the former owners. However, liability protection should not be subject to reopeners based on changing standards, as this would have the effect of diluting the benefits that accompany the granting of a regulatory approval. Criteria and standards imposed to guide the cleanup projects must be sensitive to what can be achieved with the most current and advanced technology and practices available at the time.

Mechanisms put into place to bring about liability closure should also be harmonized among all levels of government. That is, compliance with provincial standards should simultaneously lead to closure of federal obligations. This result could be accomplished in Canada through amendments to applicable environmental protection legislation that provide for federal government acceptance of the approvals process implemented by the provinces or territories.

To support these recommendations dealing with termination of liability, provincial legislation is needed to provide for the registration on title of any right to regulatory liability termination or allocation. This registration would provide innocent purchasers and future occupants with sufficient information on the environmental history of a given site, including in particular the identity of responsible persons or the availability of post-limitation period insurance funds in their stead, should any post-remediation claims arise. Provincial governments should be assured that any future claims would be covered by insurance funds financed by the premiums levied on parties applying for liability protection, and that these costs would not fall on the provinces themselves.

Adoption of this approach would require amendment of the "discoverability" rule by deeming the limitation "clock" to start upon registry on title, rather than upon discovery of the situation leading to the cause of action. The discoverability of the action is dealt with by the requirement that the approval document be registered on title and available for public review with a simple title search.

As a first step toward this goal, provinces should review and amend current joint and several liability regimes to reflect the Canadian Council of Ministers of the Environment (CCME)'s principles on apportionment of liability.

2.3 Provide for Termination of Civil Liability After a Limitation Period

Recommendation

That provinces and territories establish legislation providing for termination of civil liability after the expiry of an applicable limitation period.

That provinces and territories establish legislation providing for the registration on title of any right to civil liability termination or allocation.

Rationale

The provision to terminate civil liability after a limitation period:

- directly address the market failures stemming from "civil liability risk," including downstream failures in the capital markets and insurance markets
- provides a more controlled framework for future civil risk, enabling developers to better quantify the financial implications and spread risk through the usual mechanisms of insurance, reinsurance and diversified ownership; the result is lower initial costs to private brownfield developers and redevelopment of more brownfields.

However, as with the recommendation regarding the termination of regulatory liability, this initiative would need to include measures to protect innocent third parties.

Discussion

The termination of civil liability to third parties should be provided on the same terms as the termination of regulatory liability, that is, it should be based on approval of the remediation by provincial environmental agencies. The party seeking commencement of the limitation period for civil liability would be required to provide financial assurance in the form of a statement of adequate net worth, security or liability insurance. Such a statement should provide evidence of sufficient financial resources to meet any subsequent obligation to remediate or to cover any proven liability claim that may arise during the limitation period.

In order to promote greater certainty in the marketplace while protecting innocent third parties, civil liability should be made subject to a clearly defined limitation period. The limitation period should start from the date of the regulatory approval and public registration of the remediation.[16] The linking of the limitation period to a registration, coupled with the requirement to use a public notice by registration through the land registry system, would preserve the rights of potential claimants—they would still have the originally legislated period of time available to carry out their own due diligence investigations.

The imposition of a more definitive limitation period for civil liability would not bar a third party from suing. However, after the expiry of the limitation period, the defendant would no longer be the party that performed the cleanup and received regulatory approval of remediation. Instead, the defendant would be the applicable insurance fund entity. Therefore, any residual need for third-party protection arising after expiry of the limitation period would be addressed through the same insurance fund proposed to support the cessation of regulatory liabilities (recommendation 2.4).

Under the liability regime proposed for civil and regulatory claims, the certification of regulatory approval ought to suffice as the property owner's defence against actions by third parties that allege that the certification ought not to have been issued in the first place. In this context, claims in relation to certification become the responsibility of the certifying authority.

As with the termination of regulatory liability, provincial legislation is needed to provide for the registration on title of any right to civil liability termination or allocation to provide innocent purchasers and future occupants with sufficient information on the environmental history of a given site.

As with recommendation 2.2, provinces should first review and amend current joint and several liability regimes to reflect the CCME's principles on apportionment of liability.

2.4 Create an Insurance Fund for Post-Liability Termination Claims

Recommendation

That provinces and territories that agree to post-remediation termination of regulatory and civil liability establish legislation setting up an insurance fund for liabilities falling to the province or territory after exhaustion of the term of post-remediation private insurance.

That the federal government work with these provinces and territories to assist in initial funding and establishment of the most efficient and cost-effective means of running the insurance fund.

Rationale

An insurance fund for post-liability termination claims:

- directly addresses imperfections in the insurance market that follow from open-ended regulatory and civil risk
- is an essential instrument for addressing the market failures of regulatory and civil liability risk, complementing the general recommendations on terminating these risks (recommendations 2.2 and 2.3)
- helps provide developers with greater certainty in project planning, by converting the risks of future liability to a known cost through the premium paid
- is a flexible, selective and cost-effective approach that can be targeted to those projects that have received risk relief from governments participating in the fund as part of negotiated arrangements for the redevelopment of selected brownfields.

Discussion

The prospect of open-ended regulatory and civil liability is a key barrier to brownfield redevelopment in Canada. The private insurance industry has developed a number of products to meet the concerns of parties involved in brownfield redevelopment. Based on the experience of environmental liability claims in the United States, however, open-ended coverage is simply not available—there are time limits put on the term of coverage.

The termination of regulatory and civil liability (recommendations 2.2 and 2.3) does create a risk that innocent parties will be harmed in the future and have no recourse for a claim. To protect such innocent third parties, the establishment of insurance protection to cover future legitimate claims should accompany any termination of liability. Private insurance should cover the first 15 years of exposure following completion of remediation in an amount to be determined by each province.

Following termination of the private insurance, liability for new claims would fall to the individual province and would be paid from the provincial fund built up by premium payments made by the remediator or developer at the time of regulatory approval of remediation.

There are several alternatives for managing the insurance fund:

- Each province could manage the premiums and claims on its own.

- A national fund could be set up and run by the provinces and territories, with pooled premiums and claims.
- A federal fund could be set up with the cooperation of the federal, provincial and territorial governments, with pooled premiums and claims.
- The fund could be handled on a national basis by a private insurer on behalf of the provinces and territories.
- Coverage could be provided by private insurance, with reinsurance provided by the federal, provincial and territorial governments.

Federal assistance would be needed to facilitate the set-up of the second, third or fourth alternatives.

There are safeguards built into the overall process through the involvement of private insurers during the first 15 years. The insurers would certainly review the remediation plans and the competence of the remediators, and ensure that remediation is carried out according to specifications. Failure to do this would seriously increase the possibility of a claim during the initial 15-year coverage. There is also the possibility of reinsurance being available to a fund under any of the approaches, to reduce the exposures on a financial, time or combination basis.

2.5 Apply Site-Specific Assessment and Approvals Regimes

Recommendation

That provinces, or regions consisting of several provinces, establish effective, scientifically current assessment regimes, with protocols and sufficient human and technical resources to enable site-specific assessment of the commonly occurring contaminants of concern in brownfields in an expeditious and cost-effective manner.

That provincial governments establish a system for approval of risk assessment-based remediation.

That the federal government negotiate memoranda of agreement with provinces to accept provincially approved assessments for the purpose of federal environmental enforcement, and to provide a covenant not to sue where provincial approval has been provided.

That municipal governments, where applicable, streamline their approval process for brownfields and refrain from substituting their own standards for those of provinces through the municipal approvals and permitting process.

Rationale

Comprehensive *site assessment** and approval regimes in provinces and territories will:

- minimize the "regulatory delay" market failure resulting from the uncertainty created by some government planning and approval processes, which deters potential brownfield redevelopers from initiating projects
- help developers better quantify and lower costs
- promote the use of best practices in assessment and remediation, encouraging the development of more homogeneous groups of brownfields, which in turn facilitate the development of lower-cost standardized insurance forms and products.

Discussion

As part of a clear and effective public policy regime for brownfield redevelopment, governments at all levels need to address concerns about risk assessment issues. They need to consider establishing protocols and putting in place sufficient human and technical resources and expertise to facilitate expeditious and cost-effective *site-specific risk assessments** for commonly occurring contaminants of known concern. They also should consider establishing systems for reviewing risk assessment-based remediation on a timely basis.

The first recommendation could be implemented under the umbrella of the Canadian Council of Ministers of the Environment, building on the Council's previous work on approaches to managing contaminated sites.

2.6 Provide for Regulatory Approvals of Remediation

Recommendation

That provinces and territories establish legislation providing for regulatory approval and confirmation of the acceptability of remediation efforts.

Old foundry buildings before redevelopment, Spencer Creek Village, Dundas, Ontario, 1998

New residential units at Spencer Creek, 2001

Rationale

Regulatory approval of remediation will:

- help reduce any "regulatory delay" market failure and bring greater certainty to the project planning process
- help developers better quantify and lower costs
- complement and reinforce the recommendation on site assessment and approval regimes (recommendation 2.5), contributing to more standardized remediation practices and insurance products
- support implementation of the recommended insurance fund (recommendation 2.4)
- act as the trigger for the termination of regulatory liability and for applicable limitation periods related to civil liability (recommendations 2.2 and 2.3).

Discussion

Provincial legislation should provide for regulatory approval and confirmation of the acceptability of remediation efforts, whether conducted to ***generic criteria**** or to site-specific risk-assessed criteria. Where standards are known and predictable, expertise can be more effectively deployed in the remediation process. In effect, remediation practices developed and employed to achieve standards can themselves become standardized and subject to review and regulation. Costs also become more manageable, which in turn creates confidence in the marketplace.

As a prerequisite for approval, the party seeking approval (i.e. the redeveloper) would be required to pay a premium into an insurance fund that would be available for regulatory or civil liabilities arising or discoverable after termination of liability (see recommendation 2.4).

Strategic Direction 3: Building Capacity for and Community Awareness of Brownfield Redevelopment

The recommended actions under Strategic Direction 3 of the strategy seek to:

- enhance capacity at all levels to facilitate brownfield redevelopment
- build awareness among all partners of the benefits and challenges of brownfield redevelopment
- build shared objectives around a common vision of transforming brownfield sites into active centres of community life
- forge partnerships based on community involvement and support.

Successful brownfield redevelopment projects are built around community awareness, support and skills. A major objective of the national strategy, therefore, must be to develop community awareness and capacity in Canada around brownfield redevelopment through education, training and demonstration projects.

3.1 Increase Capacity to Undertake Brownfield Redevelopment Projects

Recommendation

That the federal, provincial and municipal governments seek to make better use of existing brownfield redevelopment expertise in Canada through information networks and exchanges.

That all levels of governments cooperate with the private and not-for-profit sectors to establish a National Brownfield Association to coordinate efforts to build Canadian capacity to undertake the redevelopment of brownfields.

That all participants in brownfield redevelopment identify training requirements and provide appropriate training opportunities for their staff, members or clients.

Rationale

Capacity-building initiatives:

- directly address the market failures of risk perception and lack of awareness
- like awareness-raising efforts, are highly cost-effective and easy to administer, because they can be targeted to and partnered with selected groups
- strongly complement and reinforce initiatives addressing the market failures of lack of access to capital, regulatory and civil liability risk, and regulatory delays.

Discussion

A comprehensive, national brownfield education, training and communications initiative could take advantage of the considerable expertise on brownfield redevelopment that exists within Canada. In particular, such an initiative could disseminate expert knowledge more widely by establishing a brownfield information network to link up groups that represent a range of professionals whose involvement is essential to resolving the brownfield challenge in Canada. Emphasis should be given to disseminating knowledge of state-of-the-art practices through the network.

Once the network is established in Canada, the federal government should establish and maintain an interactive Internet site that contains links to similar international information networks. The Internet site could showcase Canadian efforts and expertise and foster global awareness of Canadian initiatives. For example, it could direct attention to the comprehensive body of information developed on the field application of soil and groundwater remediation techniques, which is available through the Montréal Centre of Excellence in Brownfields Rehabilitation and the Ontario Centre for Environmental Technology Advancement.

Ideally, a single group or organization within the brownfield information network should be designated to lead and coordinate activities to ensure effective management. It may be advisable to establish a National Brownfield Association to take on this role, so that the lead group has access to the views of all parties interested in brownfield issues. A National Brownfield Association could organize an annual brownfields conference. It could also help establish brownfield committees at the community level or more widely promote committees that may already be at work.

Training programs are another key element of building capacity. For example:

- training for municipal and provincial officials involved in reviewing development proposals could focus on expert analysis and the formulation of remediation strategies for individual projects
- peer exchange programs among municipalities could quickly bring the knowledge and practices of more advanced municipalities to municipalities at the beginning of the learning curve
- professional associations could offer education and training workshops for their members and clients.

3.2 Facilitate the Demonstration of Innovative Environmental Technologies and Remediation Processes

Recommendation

That the federal government work with the provincial regulatory agencies responsible for issuing technology demonstration permits to develop and implement a temporary certificate of approval system;

the system would focus on the expedient approval for demonstration of near-market or commercial remediation technologies on designated brownfield sites throughout Canada.

That Industry Canada's Technology Partnerships Canada Program be extended to include funding for the demonstration of remediation technologies on designated brownfield sites in Canada.

Rationale

Efforts to demonstrate successful emerging technologies and processes:

- directly address the market failures of risk perception and lack of awareness
- complement efforts to address other market failures associated with liability risk and risk perception, by generating greater confidence in state-of-the-art technology
- complement and reinforce efforts to address the market failure of lack of capital, by lowering redevelopment costs for brownfield developers and reducing uncertainty in project planning
- can be cost-effective and relatively simple to administer, through the establishment of strict qualifying criteria.

Discussion

Canada's national brownfield redevelopment strategy should support efforts to bring to market made-in-Canada environmental technologies and remediation processes. These efforts should strive to provide an additional platform in support of Canadian innovation that complements programs already in place to promote the development, demonstration and commercialization of environmental technologies.

In Quebec and several other provinces, temporary approvals or temporary operating permits (certificates of approval) can be issued for technology vendors that want to demonstrate the validity of their technological claims and test the effectiveness of their processes.

The concept could be extended to brownfields, with the assistance of funding programs such as Industry Canada's Technology Partnerships Canada Program. Where environmental technology vendors are provided with the financial means to demonstrate their technologies and to bring them to market, they should be granted access, through a formal process, to designated brownfield sites to test and perfect their proposed technologies and techniques.

If innovators were provided with the requisite means and venue to move forward with their innovations, brownfield redevelopers in Canada would gain access to a broader range of alternatives when evaluating cleanup approaches and remediation techniques.

New Canadian technologies could be marketed through a national brownfields Internet site, which could post a roster of verified technologies and companies that could assist various stakeholders in selecting appropriate technologies for specific brownfield circumstances.

The positive impact of such technology demonstration programs has been demonstrated by the Superfund Innovative Technology Evaluation (SITE) Program, operated by the U.S. Environmental Protection Agency for the past 13 years.

3.3 Raise Awareness of the Benefits of Brownfield Redevelopment

Recommendation

That all levels of government cooperate to develop and implement an integrated communications and education strategy to raise awareness among key groups about the economic, social and environmental benefits of brownfield redevelopment.

Rationale

Initiatives to raise awareness of brownfields redevelopment:

- directly address the market failures of stigma and risk perception, by reducing the over-estimation of risk associated with remediated land, which artificially lowers the price at which redeveloped brownfields can be leased or sold
- are highly cost-effective and easy to administer, because they can be targeted to and partnered with selected groups
- complement and reinforce initiatives addressing market failures that increase the costs of brownfield redevelopment, because improved awareness

among developers, regulators and the public can reduce the likelihood of regulatory delays in project development.

Discussion

Successful brownfield redevelopment requires a shared commitment among a range of participants—all levels of government, private sector developers, the financial sector and community groups.

A key task, therefore, will be to build awareness among these groups of the challenges and opportunities presented by brownfields. Better understanding and support of brownfield redevelopment can turn a negative focus on soil contamination into a positive focus on land recycling and environmental values.

In this effort, all levels of government have opportunities for action. Initiatives that could be undertaken include:

- declaring one week a year "National Brownfields Week" to showcase various brownfield redevelopment projects proposed, underway and completed across the country
- sponsoring, in collaboration with the Canadian Urban Institute, an annual national brownfields conference as the culmination of National Brownfields Week, to provide opportunities for the exchange of information and expertise and to recognize significant achievements in brownfield redevelopment
- promoting awareness among government officials at all levels of the need to take an integrated, multi-disciplinary approach to brownfield redevelopment
- raising awareness among major landowners—public and private—of the opportunities inherent in brownfield redevelopment and of the innovative measures in place that may help overcome barriers to redevelopment
- preparing and distributing a guide on best practices in brownfield remediation, to raise awareness among developers and the financial community and to promote greater consistency and efficiency in cleanup activities across the country
- facilitating greater community involvement in brownfield issues through consultations between developers and the public and through neighbourhood "visioning" exercises, to identify and address the concerns and benefits associated with brownfield cleanup and redevelopment
- recognizing, through annual awards, municipalities and developers for technological innovations or design elements incorporated in recent brownfield redevelopment projects
- preparing a brownfield primer for elected representatives of all levels of government, outlining the challenges and benefits of redevelopment and highlighting Canadian success stories.

In Conclusion: Building a Successful Strategy

The recommendations presented under the three strategic directions represent a comprehensive, coordinated approach to encouraging the redevelopment of brownfields in many Canadian communities. The recommendations have been developed based on the following conclusions drawn from previous Canadian and international experience:

There is no single problem.

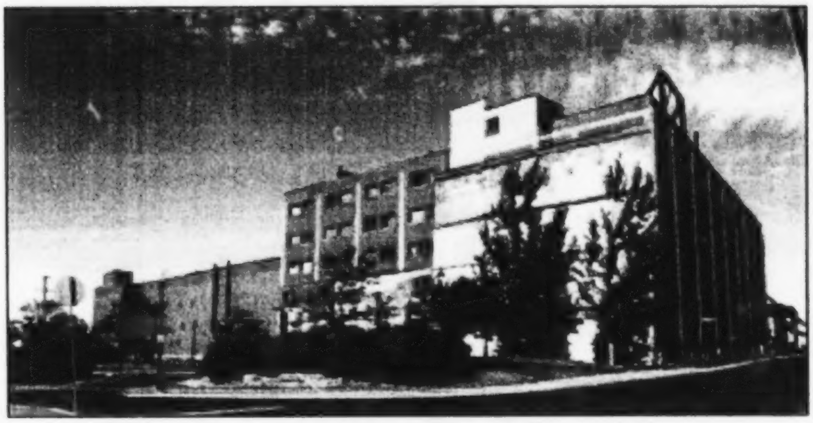
A range of interconnected market failures serve to keep brownfields idle or abandoned in Canada. Challenges are rooted in financing, the potential for liability, regulatory delays, attitudes toward risk and lack of awareness.

There is no single solution.

Each brownfield is different. Its future will be shaped by a unique set of market failures and redevelopment opportunities. A successful strategy must be built on policy instruments that recognize and allow for this diversity. Just as there is no single problem at the root of all brownfields, there is no single policy instrument—no single tax credit or demonstration project—that can hope to redevelop brownfields on its own.

Specific policy tools must target specific market failures.

Each policy tool in the strategy must be targeted according to the market failure or failures it most effectively addresses. Each tool will have its strengths and limitations, and it will be important to recognize both, whether in its focus on a specific market failure, its cost-effectiveness, its scope of applicability, its ease of administration or its potential for unintended results.



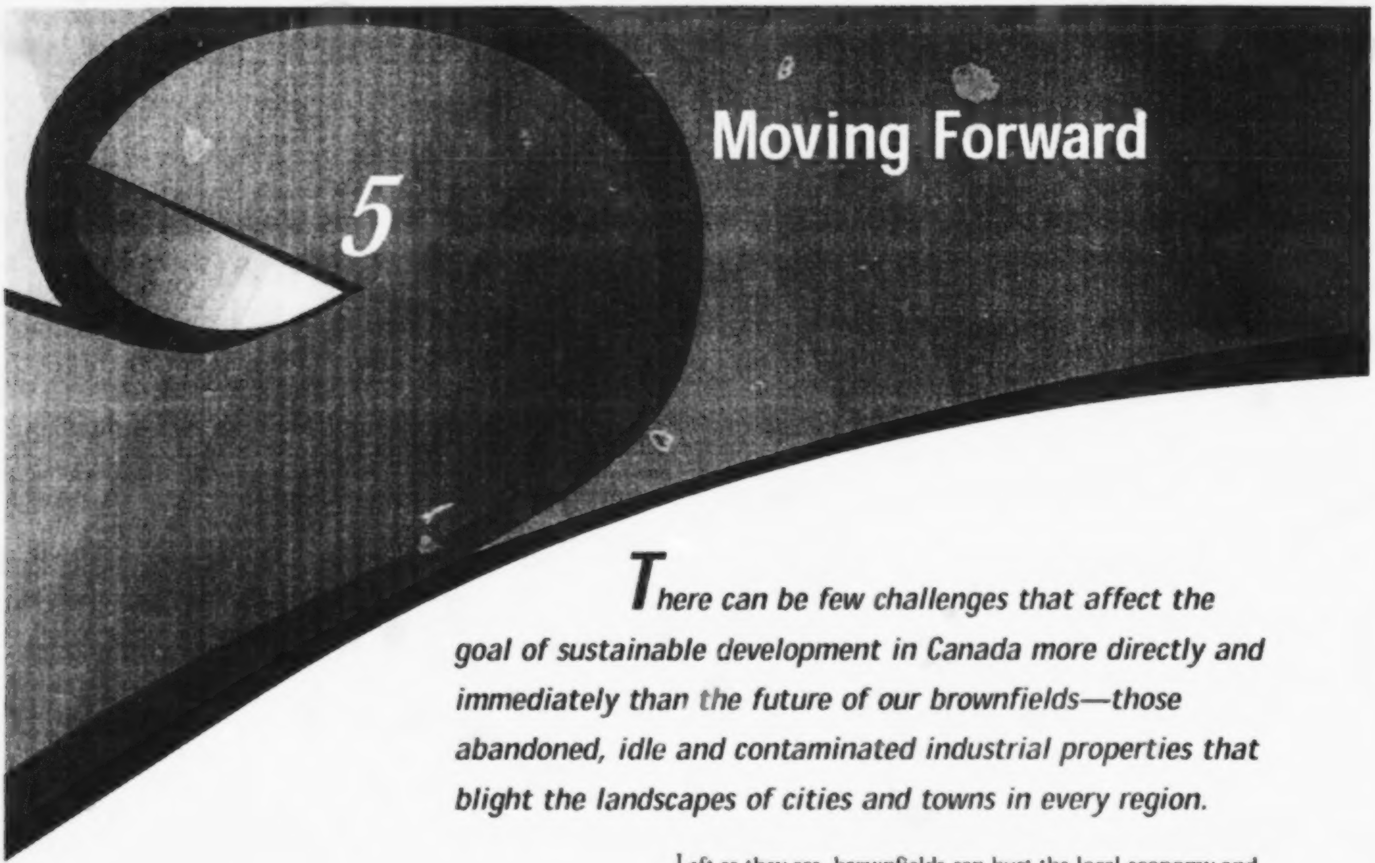
Finishing mill complex before redevelopment, Cornwall, Ontario, 2002

New finishing mill residential lofts

Policy tools cannot work in isolation.

The policy instruments should not be considered in isolation from one another. Building a successful strategy is not as simple as choosing one or two financial incentives and another measure related to liability. Rather, the recommendations should be recognized for what they are: a *package* of measures that complement and reinforce one another and that, as a whole, speak to the challenges of brownfield redevelopment in a realistic and effective manner.

The rationale provided under each of the recommendations identified the strengths and limitations of the individual policy tool being proposed. Annex 5 provides an analysis of the broader universe of potential policy tools from which the recommendations were drawn, and identifies the complementarities and connections among the tools selected for the strategy.



5

Moving Forward

There can be few challenges that affect the goal of sustainable development in Canada more directly and immediately than the future of our brownfields—those abandoned, idle and contaminated industrial properties that blight the landscapes of cities and towns in every region.

Left as they are, brownfields can hurt the local economy and pose a threat to human health and environmental quality. Transforming these sites into vibrant centres of community economic and social life is an excellent example of putting the principles of sustainable development into practice.

The national strategy presents a realistic blueprint for action on redeveloping Canada's brownfields and helping to build sustainable communities in every province. The recommendations seek to build on the excellent progress made in a number of Canadian communities and provinces on questions such as environmental liability and incentive financing.

The national strategy has been prepared, first of all, for the consideration of leaders at all levels of government in Canada, for the strategy must truly be a *national* one to succeed. No single government can address all the barriers to brownfield redevelopment. Each has a unique role to play if Canadians are to reshape those abandoned, contaminated properties along waterfronts and in older industrial neighbourhoods into places for new housing, new parks and recreational facilities, and new offices for small enterprises.

But the strategy's partners must extend well beyond governments. Its vision and blueprint for action must challenge and engage all who care about the quality of life in Canada's communities—the business and financial sectors, labour groups, neighbourhood associations, and, above all, those who live and work in these communities.

The Leadership Challenge

The experience with brownfield redevelopment in Canada, the United States and other countries demonstrates clearly that the single most essential ingredient to success is *public sector leadership.* If many of Canada's brownfields are to be redeveloped, then governments at all levels must signal their support for a coordinated national effort, take action on brownfields under their direct control, and evaluate and strengthen the strategy's initiatives over the years ahead.

In this regard, the federal government has a unique responsibility—and a unique opportunity—to launch the national strategy and begin the transformation of Canada's brownfields into special places in our communities.

The recommendations in this section are not included in the three strategic directions discussed above, as they do not directly address specific market failures.

1. Government Support for a National Strategy

Recommendation

That the federal government stimulate action on brownfield redevelopment by adopting the strategy and implementing the measures under its jurisdiction as quickly as possible, including measures such as:

- **establishing a federal office to coordinate the participation of various federal departments and agencies in the strategy**
- **implementing appropriate financing measures (proposed under Strategic Direction 1)**
- **moving to harmonize compliance with federal and provincial requirements**
- **promoting a coordinated national effort on brownfield redevelopment by encouraging other jurisdictions to match federal initiatives, where applicable, and to undertake complementary initiatives within the framework of a national strategy.**

That provincial governments move toward establishing multi-faceted programs with essential elements geared to:

- **providing financial support to local government and private redevelopment efforts**
- **ensuring legislation is in place to enable municipalities to offer a full suite of incentive programs and other measures to promote brownfield redevelopment**
- **adopting consistent provincial or regional risk assessment protocols and providing the infrastructure necessary for efficient risk assessments**
- **rationalizing liability regimes conducive to stimulating redevelopment.**

That municipal governments continue to play a pivotal role in the delivery of a brownfield redevelopment strategy and tools by:

- **establishing local redevelopment priorities**
- **simplifying and facilitating development and building approvals for brownfields**
- **redeploying municipally held brownfields by returning them to the marketplace**
- **providing financing and planning incentives to qualifying projects.**

Rationale

Public sector leadership:

- will be an essential ingredient in the development and delivery of the national strategy's recommendations, which address the full range of market failures related to risk perception and lack of awareness
- will be critical in the development of a comprehensive, coordinated national program that will provide more efficient and cost-effective administration and delivery of incentives.

Discussion

Federal leadership will be critical to ensuring the success of a comprehensive national brownfield redevelopment strategy. Federal leadership can provide important financial incentives (through federal tax law, for example) to lever additional provincial and private capital and resources, and to provide a clear and consistent direction for action by the other levels of government and the other participants in brownfield redevelopment.

However, no single level of government can unilaterally establish a program capable of addressing all the elements essential to successfully stimulating brownfield redevelopment. The constitutional sharing of jurisdiction on such matters as the environment and economic development means that federal initiatives on brownfield redevelopment must be undertaken within a harmonized, integrated national program.

Each level of government has a unique and essential role to play if the national brownfield redevelopment strategy is to succeed. Provincial leadership, for example, is needed to resolve many of the challenges generated by liability regimes. Municipal leadership is necessary to establish a redevelopment vision within the community, broker partnerships, provide financial incentives and clear away tax arrears and other barriers to cleanup and redevelopment.

There will be tremendous advantages in establishing an overarching national program to coordinate the financial incentives offered at the federal, provincial and municipal levels. This will help maximize the impact of individual incentives while eliminating costly duplication, particularly in the area of program delivery.

In seeking to promote a coordinated national effort, however, there will be a need for flexibility—a need to allow for the fact that some provinces have already made significant steps in brownfield redevelopment while others have yet to address the issue. In addition, there must be a recognition that some elements of the national strategy will need to be adopted relatively quickly, while others may require much more time and effort.

Federal tax measures, for example, must be matched by provincial governments immediately so as not to weaken the value of the incentives. Initiatives related to regulatory liability, on the other hand, will involve extensive stakeholder consultations and legislative changes (the recent initiatives of Ontario and Quebec could serve as models for the other provinces).

Federal funding should act as an incentive for provincial action. Following an initial period of perhaps five years, federal funding could be offered on a preferential basis to encourage participating provinces to continue progress on brownfield redevelopment initiatives (though assistance should not automatically be withheld from provinces that have not acted to facilitate brownfield redevelopment).

Cleanup at the Moncton Shops site, Moncton, New Brunswick, 1997

Preparation of the new sports fields at the former Moncton Shops site, 2001

2. Governments' "Own House in Order"

Recommendation

That the federal government maintain and enhance its redevelopment program for federally owned brownfield sites, such as military sites, railway lands and ports.

That the federal, provincial and municipal governments establish a policy that, when any property is purchased for their own use, brownfield sites should be given priority over greenfield sites.

Rationale

Direct actions by governments on brownfields under their jurisdiction:

- complement and reinforce the other recommendations in the national strategy; they serve as powerful and positive signals to other participants in brownfield redevelopment.

Discussion

Direct action by governments on brownfields under their control can be a powerful signal to all other participants in brownfield redevelopment. The federal government's recently announced policy on the management of federally owned contaminated sites is a good example of such direct action. The federal Contaminated Sites Management Working Group, co-chaired by Environment Canada and the Department of National Defence, could also potentially be a key player in moving the brownfield redevelopment agenda forward.

Measuring Progress

Performance measurement indicators will need to be developed to monitor implementation of the strategy. Indicators could include, for example, the:

- *number of sites remediated*
- *total area of remediated lands*
- *value of new investments generated*
- *number of new jobs created and sustained*
- *income and sales tax generated*
- *return on investment*
- *amount of new municipal tax revenue generated.*

The types and amounts of funding provided by each level of government should also be tracked. Data collected could be used to forecast future demand for brownfield funding and budgeting requirements.

Where a government, at any level, is purchasing a site for its own use, it should give priority to purchasing and redeveloping brownfield sites where this would result in environmental, economic or social benefits to the community. By making redevelopment of these prime locations, rather than purchase of competing greenfield sites, an article of policy, governments could contribute immeasurably to the success of the national strategy.

Implementing the Strategy

The details of how the national strategy should be implemented will require careful discussions among all levels of government and those private sector companies and community groups committed to the vision of brownfield redevelopment.

A flexible, phased-in approach is called for, recognizing that some provinces and municipalities have well-established brownfield initiatives while many do not, and that not all the recommended actions can or should be undertaken immediately. The goal should be to build on the progress and successes to date, develop momentum, awareness and support, and strengthen the program over time.

Table 2 summarizes how the recommendations outlined in this national strategy could be structured within the following two-phased approach.

Phase 1: A "Quick Start" Agenda

In this initial "quick start" phase of the national strategy (e.g. covering the first year), governments at all levels should look to those actions that can be undertaken relatively easily and quickly and that help:

- focus on increasing awareness and building a shared consensus for action
- link the generally unconnected brownfield redevelopment initiatives in Canada so as to promote awareness and share experience
- demonstrate success stories
- provide the foundation for longer-term redevelopment of more brownfields through the application of an expanded range of policy instruments.

Table 2 Implementing the National Strategy on Brownfield Redevelopment: Possible Phasing in of Recommended Actions

Phase 1: A "Quick Start" Agenda (e.g. 12-month horizon)	Phase 2: A Medium-Term Agenda (e.g. 5-year horizon)
Ensure all levels of government support a national strategy	Allow binding contractual allocation of liability (recommendation 2.1)
Establish Federal Coordinating Office on Brownfield Redevelopment	Provide for termination of regulatory liability (recommendation 2.2)
Ensure governments' "own house in order"	Provide for termination of civil liability after limitation period (recommendation 2.3)
Establish performance measurement framework for strategy	Create an insurance fund for post-liability termination claims (recommendation 2.4)
Establish National Brownfield Association	Apply site-specific assessment and approvals regimes (recommendation 2.5)
Develop intergovernmental memoranda of understanding on brownfield redevelopment	Provide for regulatory approvals of remediation (recommendation 2.6)
Implement tax system changes to promote brownfield redevelopment (recommendation 1.1)	Facilitate the demonstration of innovative environmental technologies and remediation processes (recommendation 3.2)
Remove liens and tax arrears against qualifying brownfield sites (recommendation 1.2)	Monitor implementation
Provide mortgage guarantees for qualifying brownfield sites (recommendation 1.3)	Evaluate initiatives/progress
Provide revolving loans for qualifying brownfield sites (recommendation 1.4)	Adjust/strengthen initiatives
Provide grants for qualifying brownfield sites (recommendation 1.5)	Encourage new participants through education and federal incentive funding
Increase capacity to undertake brownfield redevelopment projects (recommendation 3.1)	Expand range of policy instruments
Raise awareness of the benefits of brownfield redevelopment (recommendation 3.3)	

Opportunities for government action include:

- signalling support for a national program
- establishing a federal coordination office to coordinate the participation of various federal departments and agencies in the strategy
- providing greater "bridge financing" assistance for the upfront costs of brownfield redevelopment, through tax incentives offered by all levels of government
- taking steps to ensure their "own house is in order"
- developing intergovernmental agreements on the objectives, role and the need for coordinated action
- supporting demonstration projects
- promoting community awareness of and support for brownfield redevelopment
- promoting education and training around brownfield redevelopment.

There will be an ongoing need to monitor and evaluate implementation of various initiatives under the strategy, to learn what is working and what is not.

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- promoting education and training around brownfield redevelopment.

There will be an ongoing need to monitor and evaluate implementation of various initiatives under the strategy, to learn what is working and what is not.

Thus, there will be an early need to establish a performance measurement framework to help monitor the progress of the strategy.

In addition, the establishment of a National Brownfield Association to coordinate the participation of government, private sector and community interests would help promote awareness of and education on brownfield redevelopment.

Phase 2: A Medium-Term Agenda

Following their initial measures to launch the national brownfield redevelopment strategy, governments could, over the next few years, look to undertaking (if they have not already done so) the proposed actions that could take some time to complete. These include changes in legislation relating to liability and longer-term training and capacity-building initiatives.

Using the experience gained in the early years, governments could also look for ways to strengthen the national strategy. A wider range of communities and interests could be encouraged to participate in brownfield redevelopment. And a broader mix of policy instruments could be applied, building on the innovations in Canada and other countries (see Annex 6 for examples of an expanded brownfield redevelopment "policy toolkit").

Endnotes

1 Estimate from the Economic Analysis Unit, Quebec Ministry of the Environment, based on a model developed by the Institut de la statistique du Québec.

2 Regional Analytics Inc., "A Preliminary Investigation into the Economic Impact of Brownfield Redevelopment Activities in Canada," unpublished background document prepared for NRTEE, 2002.

3 Hara Associates, "Market Failures and Optimal Use of Brownfield Redevelopment Policy Instruments," unpublished background document prepared for the NRTEE, 2003.

4 Regional Analytics Inc., "A Preliminary Investigation," 2002.

5 Ibid.

6 Various materials (1975–2002) provided by Ann McAfee, Director of City Plans and Co-Director of Planning, City of Vancouver.

7 Hara Associates, "Market Failures," 2003.

8 Figures from a major U.S. study in 2001, cited in Regional Analytics Inc., "A Preliminary Investigation," 2002.

9 Regional Analytics Inc., "A Preliminary Investigation," 2002.

10 Hara Associates, "Market Failures," 2003.

11 Regional Analytics Inc., "A Preliminary Investigation," 2002.

12 It should be noted that the tiers represent a conceptual approach for addressing the different needs of different types of brownfields, and are not strictly separated categories with defining criteria.

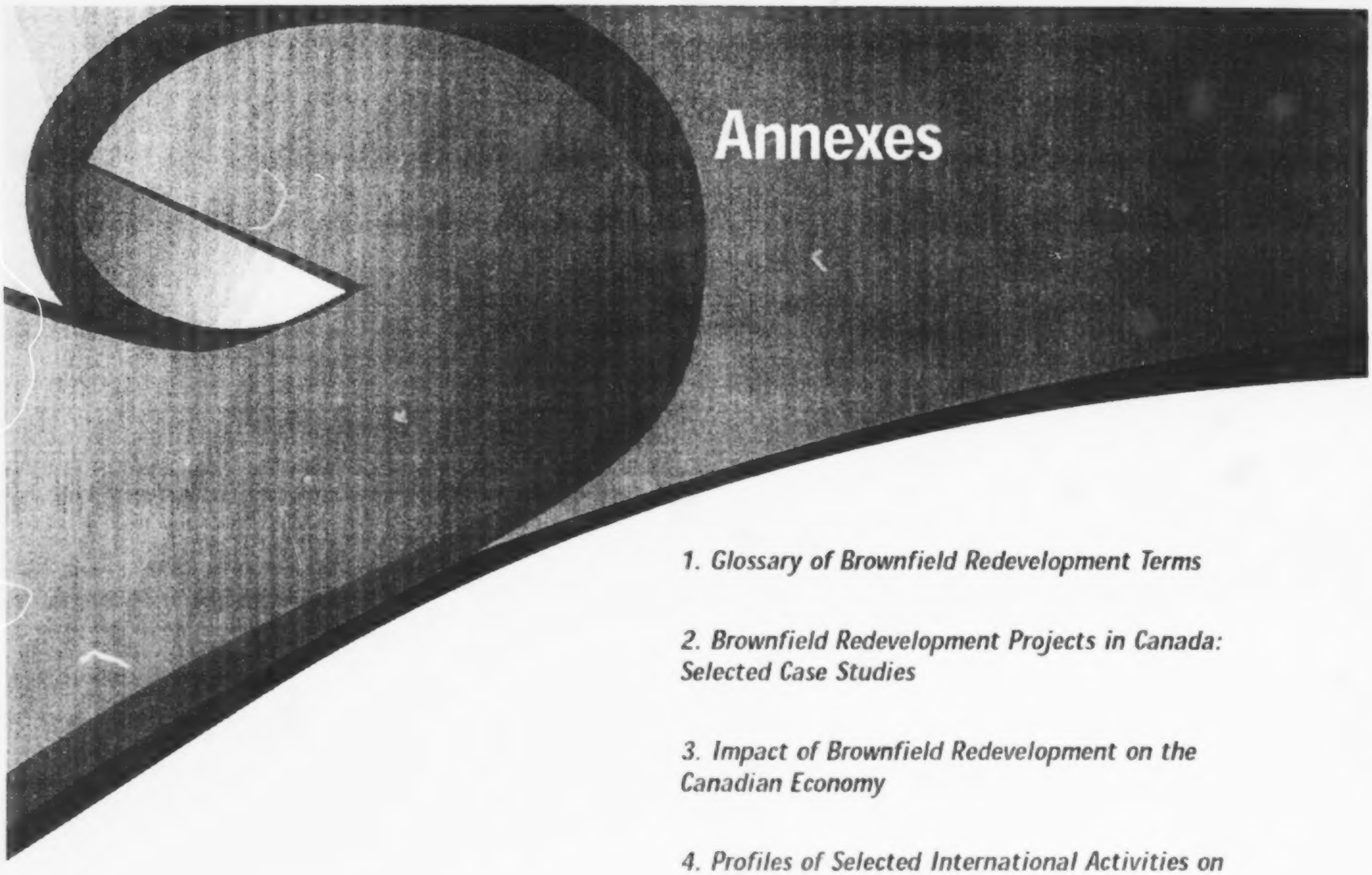
13 Derived from Ahab Abdel-Aziz and Shari Elliott of Osler Hoskin & Harcourt LLP, "Brownfield Redevelopment. What Is Needed for a Successful Program in Canada?" Environment Law, vol. V, no. 3, 2002.

14 A more detailed discussion of market failures as they relate to brownfield redevelopment is presented in Hara Associates, "Market Failures," 2003; see Annex 5 for a summary.

15 Hara Associates, "Market Failures," 2003.

16 Currently, limitation periods for civil liability are guided by the rule of "discoverability," that is, they begin when conditions that could give rise to causes of civil action are first identified. Under this principle, a limitation period could commence years or even decades after remediation was conducted on a site.

Annexes



1. *Glossary of Brownfield Redevelopment Terms*

2. *Brownfield Redevelopment Projects in Canada: Selected Case Studies*

3. *Impact of Brownfield Redevelopment on the Canadian Economy*

4. *Profiles of Selected International Activities on Brownfield Redevelopment*

5. *Market Failures and Optimal Use of Brownfield Redevelopment Policy Instruments*

6. *An Expanded Brownfield Redevelopment Policy Toolkit*

A2

Annex 1

Glossary of Brownfield Redevelopment Terms

Brownfield

An abandoned, vacant, derelict or underutilized commercial or industrial property where past actions have resulted in actual or perceived contamination and where there is an active potential for redevelopment.

Escheat

The reversion of property to the federal or provincial Crown, as provided by law, for example when property is abandoned.

Greenfield

A vacant property with no actual or perceived contamination, usually located outside urban centres and without municipal services.

Liability

Civil Liability

A legal obligation that arises under the law of private rights, referred to as common law, in comparison with the criminal or administrative law. Civil liability is an action commenced by a court action.

Regulatory Liability

A legal obligation laid out by a statute that creates a regulatory offence. Regulatory offences are usually considered more minor than criminal offences, since they are only intended to secure the effective regulation of conduct in the interest of the community.

Joint and Several Liability

The doctrine of joint and several liability makes any joint defendant against whom a judgment is entered in an action liable to the claimant for the entire judgment, regardless of the defendant's share of fault. The defendant then has right of contribution and indemnification against the other defendants. If the other defendants are insolvent, then, despite being as little as 1 percent responsible for the damages, the sole remaining solvent defendant must contribute 100 percent of the award.

Lien

The right to retain the lawful possession of the property of another until the owner fulfils a legal duty to the person holding the property, such as the payment of lawful charges for work done on the property. A mortgage is a common lien. In its widest meaning, this term includes every case in which real or personal property is charged with the payment of any debt or duty; every such charge being denominated a lien on the property. In a more limited sense, it is defined to be a right of detaining the property of another until some claim is satisfied.

Limitation period

The time within which regulatory or civil actions can be commenced. If a limitation period is established in statute, then actions would be barred once the assigned time expires.

Municipal tax sale

This is the statutory process followed by municipalities to recover property tax arrears. There is an initial notice period during which the municipality sends notices to the property owner initiating the process and requesting payment of a "cancellation price" within a specified timeframe. If the cancellation price is not paid, then the property is offered for sale to the highest bidder. If there are no bidders, the property vests in the municipality.

Quitclaim

A transfer of land or real property without guarantee of a clear title.

Quitclaim Deed

A deed that transfers the owner's interest to a buyer but does not guarantee that there are no other claims against the property.

Remediation

The action taken to cleanup, contain or remove the risk posed by contamination at a site.

Reopener

An event (e.g. fraud) that would allow claims and/or orders to be made against a party that has been granted some form of liability closure.

Risk assessment

The process of identifying and evaluating risks to human health, human safety and/or the environment from the actual or potential presence and/or use of specific pollutants.

Site assessment (environmental)

An approach for identifying and assessing potential environmental concerns in respect of activities conducted at a facility and/or the potential presence of contamination at a site in accordance with accepted standards.

Site-specific risk assessment

A risk assessment that incorporates characteristics of a site (e.g. physical and chemical characteristics, geology, soil type and biology) to establish the risk posed by a specific contaminant or hazard present at a site.

Generic criteria

Numerical values for soil, groundwater and air quality that are published by a regulatory agency or other body to gauge whether the presence of a contaminant is above, at or below an accepted limit.

Tax Increment Financing (TIF)

A tool used by municipalities to freeze local and state/provincial taxes to the level before redevelopment. Any tax increase stemming from the redevelopment can be used to provide financial incentives for site remediation, new development and rehabilitation of existing buildings.

Vested

Having the rights of ownership, although enjoyment of those rights may be delayed until a future date.

Annex 2

Brownfield Redevelopment Projects in Canada: Selected Case Studies

This annex provides an overview of selected brownfield redevelopment projects in Canada. Most of the projects profiled are still under redevelopment. The economic impacts were projected based on results to date and an estimate of the impacts that will result from the planned redevelopment.[1] (Some information for several of the case studies was not immediately available.)

The selected brownfield projects are:

1. Moncton Shops Project, Moncton, New Brunswick
2. Voisey's Bay Project, Argentia, Newfoundland
3. ICI, Shawinigan, Quebec
4. Angus Shops, Montréal, Quebec
5. Centre de la Petite Enfance (Familigarde), Ville La Salle, Quebec
6. Barton and Crooks Streets, Hamilton, Ontario
7. Spencer Creek Village, Hamilton (Dundas), Ontario
8. West Harbour Lands, Cobourg, Ontario
9. Courtald's Fibres Project, Cornwall, Ontario
10. Finishing Mill Lofts, Cornwall, Ontario
11. Stelco Swansea Works Project, Toronto, Ontario

The case studies demonstrate the significant economic, social and environmental benefits that can be derived from brownfield redevelopment, regardless of the size of the project or the type of reuse. Even small projects, such as the Barton and Crooks project in Hamilton, can generate additional employment and increases (in the hundreds of thousands of dollars) in personal income, income taxes paid, and provincial and federal sales tax revenues, as well as provide additional property tax revenues for municipalities and provinces. Larger projects will generate hundreds of redevelopment and full-time jobs, millions of dollars in additional income, income tax and sales tax revenues, and hundreds of thousands of dollars in additional property tax revenues.

Significant economic impacts are only part of the story of brownfield redevelopment, however. The case studies demonstrate the wide range of social and environmental benefits that accrue when brownfield properties are transformed into community and neighbourhood assets. These benefits include:

- neighbourhood, employment area and urban core revitalization
- provision of affordable housing opportunities
- increased downtown population and housing opportunities
- improved aesthetic quality of the urban fabric
- creation of parkland and public open space
- improved public waterfront access
- elimination of significant environmental hazards
- protection of groundwater resources
- protection of wetlands and wildlife habitat
- protection and improvement of public health
- accessible and open community participation
- increased sense of civic and community pride.

1. Moncton Shops Project, Moncton, New Brunswick

Developer: Canada Lands Company (CLC)
Location: Downtown, Moncton, New Brunswick
Site Area: 285 acres

Proposed Use

Mixed use development with:

- 60 acres (500,000 square feet) for the Emmerson Business and Technology Park
- 110 acres for Moncton Common recreational area (includes 10 baseball diamonds, two football fields and four soccer fields)
- a sportsplex (four NHL-sized hockey rinks)
- 64 acres for (450 to 550) residential units

Site History

- Used as an industrial site for 85 years; former Canadian National Railway repair shops for Eastern Canada

Site Condition

- Numerous industrial contaminants in soils

Cleanup

- CLC undertook comprehensive remediation, which has been completed, and has launched an extensive redevelopment program
- University of Moncton Chemistry Department conducted the bulk of the site assessment, using innovative site assessment and remediation methodology (CLC invested $100,000 in laboratory facilities at the University of Moncton)
- Site assessment results indicated areas where contamination could be managed on site (by modifying land uses) and areas where soils required remediation

Costs

- Initial estimates of cleanup: $50 million to $100 million
- Actual cleanup: $12 million to $15 million

Progress to Date

- Moncton Commons recreational area and sportsplex are complete
- Construction began in September 2002 on the first commercial building in Emmerson Business and Technology Park; the park will take 10 years to complete

Economic Benefits

- More than $200 million from remediation and potential future development
- Approximately 300 person-years of employment during remediation (1996 to 2001)
- Approximately 1,500 person-years of employment during construction of the Emmerson Business and Technology Park
- Potentially 5,000 permanent jobs after completion of Emmerson Business and Technology Park
- Approximately 250 person-years of employment during construction of the Franklin Heights residential area
- Approximately 30 person-years of employment during construction of the open recreational area Potential investment of $175 million for future building development in Emmerson Business and Technology Park; $20 million for future development of Franklin Heights; $5 million for the construction of the open recreational area
- The potential total property tax base at full development is almost $9 million (the present property tax base is $214,000): $8 million from Emmerson Business and Technology Park, $550,000 from Franklin Heights

Other Benefits

- The open recreational park will benefit current and future generations of Moncton residents
- The potential for 5,000 permanent jobs in Emmerson Business Park will significantly benefit the quality of life in Moncton and surrounding area by supporting local businesses, increasing home sales and increasing social amenities
- Citizens participated in site planning via a citizen environmental committee

2. Voisey's Bay Project, Argentia, Newfoundland

Developer: Argentia Management Authority
Location: Voisey's Bay, Newfoundland
Site Area: 9,000 acres

Proposed Use

- Industrial/commercial

Site History

- Former military base; decommissioning began in 1995

Site Condition

- Information not immediately available

Cleanup

- Extensive cleanup

Costs

- Cleanup: $81 million for 9,000 acres
- Environmental consulting (phases 1 and 2): $7 million
- Survey: $9.4 million
- Renovations: $2.37 million
- New construction: $3.25 million
- Public money: $5 million to promote and market a 9,000-acre site
- Maintenance of site: $9.4 million

Progress to Date

- Site decommissioning and remediation is underway
- 3,000 acres of land remediated
- 6,000 acres of land classed as rural/recreational
- 149,000 square feet of industrial/commercial space renovated
- 57,000 square feet industrial/commercial space built
- Granite and stone cutting operation: $20 million invested

Economic Benefits

- Private sector investment to date: $25.8 million
- Projected private sector investment: $930 million (Voisey's Bay Nickel will build a $130-million plant in Argentia by 2006 and an $800-million plant by 2011
- 630 new construction jobs; average construction wage: $10 to $12 per hour
- Personal income from on-site remediation and construction jobs: $720,000 (to date)
- Income tax from on-site remediation and construction jobs: $216,000 (to date)
- Increase in GST/HST revenues: $900,000 (to date)
- Increase in annual property taxes collected by municipality: $195,000 to date

3. ICI, Shawinigan, Quebec

Developer: The City of Shawinigan, ICI Canada
Location: Shawinigan, Quebec
Site Area: 3 acres

Proposed Use

- Shopping mall

Site History

- ICI operated a chlor-alkali manufacturing plant and a solvent manufacturing plant on this site from 1936 to 1985

Site Condition

- Soils heavily contaminated with mercury and organo-chloride solvents
- Groundwater in area severely contaminated by chlorinated organic compounds

Cleanup

- The company had already spent $10 million cleaning up the site between 1985 and 1999; the mercury-contaminated soil exceeding the industrial/commercial generic criteria had been excavated; 650,000 litres of free solvents had been pumped out of the site during the 1990s

- Revi-Sols^2 allowed ICI to complete the cleanup by excavating areas still heavily contaminated by solvents; those areas were 400 metres wide and up to 14 metres deep
- To minimize impacts on citizens of the nearby residential area, only small surfaces were excavated at a time; in total, 7,000 kilograms of condensed solvents were recovered.

Costs

- Assessment and cleanup: $5.567 million (Revi-Sols paid for half)
- Construction: $10 million

Progress to Date

- The site has been cleaned up, and the mall has been constructed

Economic Benefits

- Private sector investment (project cost): $12.8 million
- Increase in municipal property tax revenues (amount of increase not immediately available)

Other Benefits

- Cleanup of a massive source of volatile organochloride solvents located next to a residential area, protecting the health of the citizens in that area
- Redevelopment of a property that had been derelict for over 25 years
- Addition of commercial space near a residential area

4. Angus Shops, Montréal, Quebec

Developer: Canadian Pacific Railway (CPR)
Location: Montréal, Quebec
Site Area: Total 1,240 acres; Contaminated area: 309 acres

Proposed Use

- 800 houses
- Light industrial and commercial development
- Development of nine parks and other green spaces of different sizes
- Linear park at the west end of the site, which will be connected to the existing City of Montréal bicycle path network

Site History

- Used between 1904 and 1992 for maintenance and repair of rolling stock; facilities also used for construction of new railway equipment, as well as armament and military equipment during both World Wars; at its peak, the Angus Shops employed 12,000 people and consisted of 31 main and 35 ancillary buildings

Site Condition

- Heavy contamination with heavy metals, petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAHs)

Cleanup

- Removal and off-site disposal of hazardous waste
- In residential area and central park, removal of all soil exceeding residential generic criteria, slag, cinder and demolition debris
- In industrial area, removal of all recyclable material; site then backfilled with soils from an on-site source
- In commercial area, removal of waste and contaminated soil within the infrastructure trenches

Costs

- Cleanup: $12 million
- Residential development: $204 million

- Commercial development: $20 million
- Industrial development: $250 million

Progress to Date

- 500 houses built
- Food supermarket and industrial mall built
- Biotechnology centre under construction

Economic Benefits

- $12 million has been invested to clean up the environment ($8.64 million invested by private parties and $3.36 million provided by Revi-Sols)
- $391.6 million invested to date by private parties to build up a residential neighbourhood, supermarket, light industry and a biotechnology centre
- Property taxes have increased to $2.19 million a year thus far

Other Benefits

- Transformation of a vast non-productive former industrial site into a new dynamic neighbourhood, integrating commercial development and a light industrial park
- New social and economic development of the area

5. Centre de la petite enfance (Familigarde), Ville La Salle, Quebec

Developer: Not-for-profit corporation
Location: City Centre, Ville La Salle, Quebec
Site Area: 4.8 acres

Proposed Use

- Kindergarten for 60 children and administrative offices

Site History

- Filled with rubble of unknown origin, including foundry waste and coal

Site Condition

- Soils contaminated with PAHs and various solid wastes

Cleanup

- Removal of all solid waste and soil contaminated beyond the generic criteria

Costs

- Assessment and cleanup: $101,500 ($50,750 paid by Revi-Sols)
- Construction: $898,500

Progress to Date

- The site has been cleaned up
- Construction of the kindergarten is almost complete

Economic Benefits

- New building on a former derelict property
- 30 new full-time jobs

Other Benefits

- Provision of much-needed kindergarten places next to a residential area, strengthening the cohesion of the neighbourhood

6. Barton and Crooks Streets, Hamilton, Ontario

Developer: Kimshaw Holdings
Location: West Harbourfront area, Hamilton, Ontario
Site Area: 3.5 acres

Proposed Use

- 10 single residential units
- 17 residential townhouse units
- 10,000 square feet of commercial space

Site History

- Previously owned by Canadian National Railway. Part of the site was used for a gas station from 1956 to 1995; the site was also used to dump fill

Site Condition

- Soils contaminated with various substances including oil and lead

Cleanup

- Residential component of site cleaned using a generic stratified approach (top 2.4 metres cleaned to residential standards)
- Excavation of soils and off-site disposal
- Sorting and retention of on-site soils meeting industrial/commercial standards for use below 2.4 metres

Costs

- Cleanup: $250,000
- Servicing: $225,000
- Construction: $2.95 million
- Development charges and building permit fees: $216,500

Progress to Date

- Seven of 10 single residential units completed or under construction
- 17 townhouse units and commercial space nearing completion of planning approvals stage

Economic Benefits

- Private sector investment (project cost): $3.64 million
- Personal income from on-site remediation and construction jobs: $720,000
- Income tax revenues from on-site remediation and construction jobs: $216,000
- Increase in GST revenues: $240,000
- Increase in PST revenues: $274,000
- Permanent new jobs: 10
- Increase in annual property taxes collected by municipality: $77,500
- Development charges collected by municipality: $183,900

Other Benefits

- Provision of housing close to waterfront public parks and amenities
- Neighbourhood stabilization and revitalization

7. Spencer Creek Village, Hamilton (Dundas), Ontario

Developer: Urban Horse Developments
Location: Downtown Dundas, Ontario
Site Area: 12 acres

Proposed Use

- Adult lifestyle community; 498 residential units including 100 retirement units
- 40,000 square feet of commercial space, including Eurohotel/medical services, clubhouse and community centre

Site History

- Former Bertram Steel Foundry established here in the late 1800s

Site Condition

- Contaminants included creosote, foundry sand, PCBs and hydrocarbons
- Substantial amount of surface waste

Cleanup

- Excavation and disposal of soils, on-site sorting of soils, and some bio-remediation used to remove hydrocarbons
- Extensive recycling of demolition materials including reclamation of bricks, steel beams and wood beams

Costs (to date)

- Cleanup: $1.85 million
- Environmental consulting: $270,000
- Planning/civil engineering: $130,000
- Servicing: $600,000

Progress to Date

- First phase (48 residential units) of eight phases is complete and occupied; construction of second phase began in 2002
- Projected "build out" of project: 6 years

Economic Benefits

- Private sector investment (project cost): $94.4 million
- Personal income from on-site remediation and construction jobs: $12 million
- Income tax revenue from on-site remediation and construction jobs: $3.6 million
- Increase in GST revenues: $6.61 million (projected)
- Increase in PST revenues: $7.55 million (projected)
- Permanent new full-time and part-time jobs: 40 (projected)
- Increase in annual property taxes collected by municipality: $1.76 million, based on an actual increase of $175,000 for the 48 residential units in phase one (projected)

Other Benefits

- Downtown population increased by 1,000 people
- Retirement residences provided in a downtown location close to services
- 2.5 acres of new parkland and new public walkways

8. West Harbour Lands, Cobourg, Ontario

Developer: Cobourg Harbour Development Corporation (CHDC)
Location: Lake Ontario waterfront, Cobourg, Ontario
Site Area: Information not immediately available

Proposed Use

- Residential condominiums
- Parkland/open space
- Beach area
- Waterfront trail
- Campground

Site History

- Formerly a busy port from which ore and other products were shipped; the site also contained several rail spur lines, as well as bulk gasoline and furnace oil storage operations

Site Condition

- Contaminants included heavy metals, such as lead, arsenic and mercury, and petroleum hydrocarbons

Cleanup

- Numerous cleanup methods applied, including excavation and off-site disposal, and bio-remediation.
- Groundwater monitoring to ensure water would be acceptable for public use

Costs

- Cleanup: $2 million

Progress to Date

- The first residential condominium project was completed and occupied in 1994; the project was initiated by Cobourg Housing and Development Corporation in 1993 on land formerly owned by MacAsphalt Ltd. and Shell Canada
- The second phase of residential development was completed in 1997 on former Ultramar Canada Lands
- Restoration of the former Imperial Oil site was completed in 1997; the site was purchased by Town of Cobourg for public use and waterfront activities
- The municipality has invested $2.3 million so far in waterfront improvements

Economic Benefits

- Residential construction will generate $162 million
- Increase in GST revenues: $8 million
- Building and construction fees paid to the municipality: $2 million
- The new marina will generate $3.1 million annually for the community by 2008
- 100 to 200 new construction jobs
- Annual waterfront festival now attracts 80,000 people and generates approximately $3.6 million for the local economy

Other Benefits

- Downtown waterfront revitalization
- Increased and improved land for public open space, park and recreational uses
- Elimination of significant environmental hazards
- Improved tourism business as the waterfront is now a major destination for residents and visitors

9. Courtald's Fibres Project, Cornwall, Ontario

Developer: Noyar Development, Inc. (Phase I)
Location: Cornwall, Ontario
Site Area: Phase I: 9.8 acres; total site: 100 acres

Proposed Use

- Phase I: 44-lot residential subdivision
- Majority of remainder of site remediated to open space/residential and some industrial/commercial levels
- Future development potential not yet determined

Site History

- Used as Courtald's Fibres' main complex from 1925 to 1992; Courtald's Fibres produced synthetic fibres (rayon) for the garment and other textiles industries

Site Condition

- Industrial processes used dozens of chemicals, including caustic soda, carbon disulphide, acids, derivatives of benzene, fluorene, pyrene, naphthalene, petroleum hydrocarbons, toluene and chromium tetrahydrofurans
- Contaminants in Phase I related primarily to long-term use as employee parking lot for Courtald's Fibres—cinders, oil, grease and suspended solids; some areas contained higher levels of arsenic

Cleanup

- Use of stormwater interceptor or oil/grit separator prior to stormwater release to the river
- Removal of arsenic (levels now acceptable for residential and parkland use)
- Soils containing cinder were covered with a substantial layer of topsoil

Costs

- (Not available)

Progress to Date

- Construction of 44 single residential units is underway; approximately a dozen units completed
- Economic Benefits
- Property tax increases
- Employment opportunities for local contractors

Other Benefits

- Waterfront revitalization
- Major public open space along the waterfront
- Provision of additional housing

10. Finishing Mills, Cornwall, Ontario

Developer: Renaissance Group
(not-for-profit corporation)
Location: Waterfront, Cornwall, Ontario
Site Area: Finishing Mill Lofts Project: 4 acres;
total site: 12 acres

Proposed Use

- 48-unit affordable housing project with ancillary office and commercial space on first floor

Site History

- Housed former Canada Cotton Mills Complex, including several large multistorey buildings

Site Condition

- Some contaminated soils
- Oil remaining in a bunker under one of the buildings
- Overall structural condition of the buildings is good, but buildings must be retrofitted and upgraded to resist seismic loads
- Some demolition required

Cleanup

- Removal of contaminated soils
- Removal of oil remaining in bunker

Costs

- Cleanup: $500,000
- Feasibility study (including environmental): $120,000
- Demolition: $380,000
- Construction: $19.5 million
- Parking construction: $1.3 million
- Development charges waived

Progress to Date

- Planning and detailed study stages completed

Economic Benefits

- Private sector investment (project cost): $19.5 million
- Increase in annual property taxes collected by municipality—$88,000 for Finishing Mill Lofts Building alone
- 48 new residential units
- 10,000 square feet of new commercial space

Other Benefits

- Provision of affordable housing close to the waterfront and an adjacent public park

11. Stelco Swansea Works Project, Toronto, Ontario

Developer: REON Development Corporation
Location: Humber River and Gardiner Expressway, Toronto, Ontario
Site Area: 12 acres

Proposed Use

- 850 residential units in a mixture of townhouses and three residential towers
- Small parks and green space along southern boundary of site

Site History

- Housed Stelco's main fastener production operations between 1885 and 1990; facility closed in 1990 and vacant until purchased by REON in 2001; main production operations were located on the West property (8 acres) and an office building, parking and materials storage were located on the East property (4 acres)

Site Condition

- Two large ponds and wetland areas on the site were filled between 1940 and 1990 with assorted materials including blast furnace clinker, coal ash, building and demolition wastes, assorted waste soils and other debris
- Surface soils on West property were contaminated with petroleum products
- Some surface soils on East and West properties were mildly contaminated with metals

Cleanup

- Off-site disposal of soils with high metal concentrations
- Bio-remediation of most soils containing elevated levels of petroleum hydrocarbons without excess concentrations of metals
- On-site analytical procedures and rapid laboratory turnaround enabled extensive sorting of materials on site, thus minimizing amount of clean soil removed from site

Costs

- Not available

Progress to Date

- East property remediation is complete
- West property remediation is one third complete.
- Zoning application is approved
- Detailed site plan has been submitted to the City

Economic Benefits

- Estimated increase in annual property taxes collected by municipality: $2.5 million

- 850 new residential units

Other Benefits

- Funds contributed for construction of a boat house on the Humber River and for playground equipment for four schools in the Swansea area (this would not have occurred in the absence of the redevelopment)
- Implementation of an accessible and open community participation process

Annex 3

Impact of Brownfield Redevelopment on the Canadian Economy

This annex summarizes an economic analysis of the impact of brownfield redevelopment on the Canadian economy. It is based on a research paper commissioned by the National Round Table on the Environment and the Economy in 2002.[3]

The analysis provides a macro-economic perspective of the economic impact of brownfield redevelopment in Canada. In so doing, it complements the case study analyses of the impacts of specific redevelopment projects at the community level (see Annex 2).

The goal of the analysis was to gain a better understanding of the economic impact of brownfield redevelopment in Canada resulting from the "multiplier effect" associated with this redevelopment. The multiplier effect refers to how one dollar spent on an activity is re-spent (through several rounds) on further activities and commodities.

The analysis:

- proposed a hypothetical brownfield redevelopment sector (or "cluster") of the Canadian economy (in terms of its economic activities and commodities)[4]
- modelled the cluster's income multiplier effects on the economy
- compared the multiplier effects of brownfield redevelopment with those of other sectors of the economy.

Figure A3-1 presents a simplified picture of the multiplier effect process as it pertains to the brownfield redevelopment cluster of the economy. One dollar spent by the cluster is allocated to all of those service sectors that provide critical "front line" inputs, such as environmental consulting firms, remediation contracting firms, engineering consulting firms, planning consulting firms, and legal services and insurance providers. The original dollar of expenditure is allocated to these front-line input providers (the listing of front-line service providers in Figure A3-1 is not exhaustive), and each of these firms uses the income to purchase their critical front-line inputs. The process continues until the original dollar is consumed. Along the way, each firm, in buying inputs, stimulates production and activity in the economy, and multiplies the effect of the original dollar.

As indicated in Table A3-1, the analysis concluded that Canada's brownfield redevelopment cluster has the *highest output multiplier of any sector in the economy.* That is, funds dedicated to brownfield redevelopment would have a larger multiplier (or stimulation) effect on the Canadian economy than would investment in any other sector. The conclusion should not be surprising, given the high service content of the brownfield redevelopment cluster and the many interfirm linkages that typify brownfield redevelopment activity (e.g. the high degree to which the brownfield sector purchases goods and services from other sectors of the Canadian economy).

Table A3-2 summarizes the impact of brownfield redevelopment activity on the Canadian economy, assuming different levels of current output for the cluster (ranging from a conservative estimate of $50 million a year, to an optimistic level of $200 million a year). The findings indicate the impact of the cluster's large multiplier effect. For example, if the brownfield redevelopment cluster sustains an output level of $100 million a year (likely a reasonable estimate of current activity), the Canadian economy as a whole will produce an additional $375 million a year in output.

The analysis distinguishes between direct, indirect and induced effects, all of which sum to the total output impact:

- direct effects represent those expenditures of the brownfield redevelopment cluster that go to the front-line input providers (often local providers of required services and commodities)
- indirect effects represent all the rounds of spending after the direct effects
- induced effects are those output impacts resulting from induced personal consumption expenditures in the economy flowing from the initial injection of money.

Table A3-3 illustrates the federal revenue implications from various levels of brownfield redevelopment activity (assuming an average wage of $35,000 a year and 2001 levels for Canada Pension Plan and Employment Insurance deductions). According to the analysis, for example, $100 million a year in brownfield redevelopment activity generates an estimated $21.6 million in federal revenues.

The results of the analysis reinforce the growing recognition that brownfield redevelopment activities can generate substantial economic (and, by extension, social) benefits to the Canadian economy.

Table A3-1 Comparison of Total Output Multipliers of Key Economic Sectors in Canada

Sector of the Canadian economy	Total output multiplier
Brownfield redevelopment cluster	3.8
Government	3.1
Construction	3.0
Transportation and warehousing	3.0
Forestry and logging	2.9
Manufacturing	2.8
Education services	2.7
Information and cultural industries	2.7
Mining and oil and gas extraction	2.5
Health care and social assistance	2.4
Finance, insurance and real estate	2.2
Utilities	1.9

Table A3-2 Impact of Brownfield Redevelopment Activity on the Canadian Economy

(in 1998 Canadian $)

Assumed current annual output of brownfield redevelopment cluster	Total output impact	Direct output impact	Indirect output impact	Induced output impact
$50 m	$188 m	$47 m	$83 m	$58 m
$100 m	$375 m	$93 m	$166 m	$116 m
$150 m	$563 m	$140 m	$249 m	$174 m
$200 m	$751 m	$186 m	$332 m	$233 m

Table A3-3 Federal Revenue Implications from Brownfield Redevelopment

(in 1998 Canadian $)

	Assumed activity levels of brownfield redevelopment cluster			
	$50 m	$100 m	$150 m	$200 m
Federal personal income tax	$4.55 m	$9.1 m	$13.7 m	$18.2 m
Federal indirect taxes (e.g. GST, gas tax)	$1.05 m	$2.09 m	$3.14 m	$4.18 m
Employer and employee contributions to CPP	$3.07 m	$6.14 m	$9.12 m	$12.3 m
Employer and employee contributions to EI	$2.14 m	$4.28 m	$6.43 m	$8.57 m
Other transfers from persons to government	$0.005 m	$0.009 m	$0.014 m	$0.018 m
Total impact on federal revenues	$10.8 m	$21.6 m	$32.4 m	$43.2 m

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Figure A3 Simplified Representation of the "Multiplier Effect" in the Brownfield Redevelopment Cluster

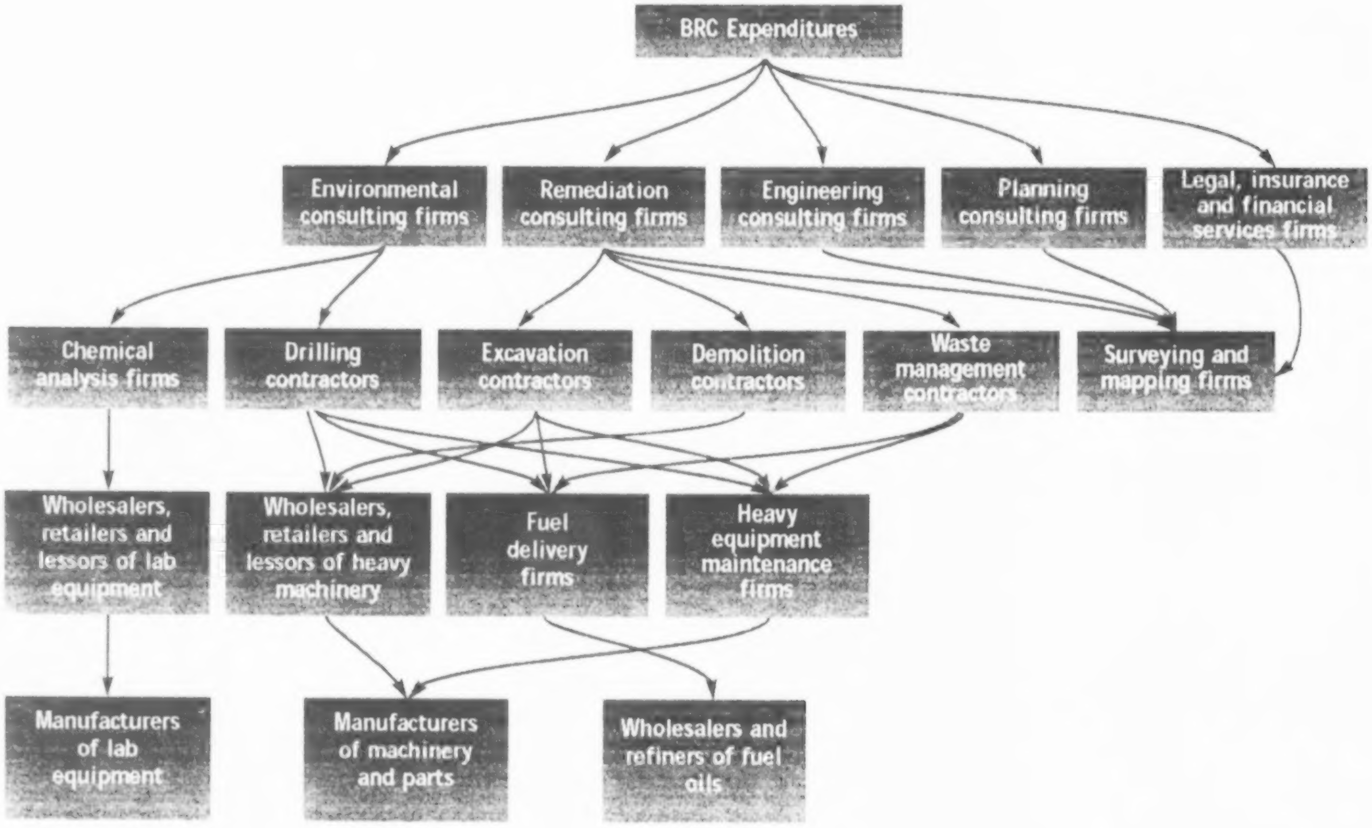
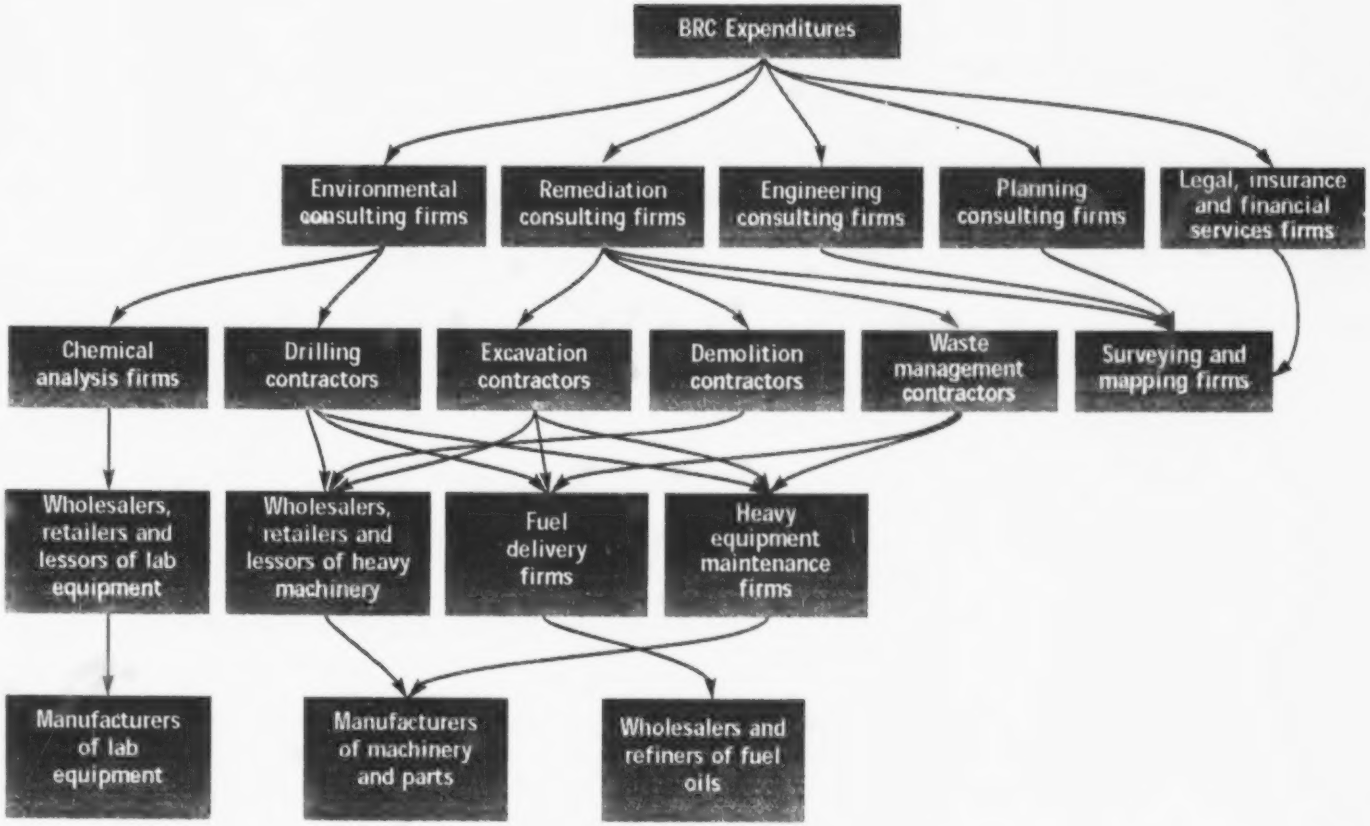

BRC Expenditures
Environmental consulting firms
Remediation consulting firms
Engineering consulting firms
Planning consulting firms
Legal, insurance and financial services firms
Chemical analysis firms
Drilling contractors
Excavation contractors
Demolition contractors
Waste management contractors
Surveying and mapping firms
Wholesalers, retailers and lessors of lab equipment
Wholesalers, retailers and lessors of heavy machinery
Fuel delivery firms
Heavy equipment maintenance firms
Manufacturers of lab equipment
Manufacturers of machinery and parts
Wholesalers and refiners of fuel oils

Figure A3-1 Simplified Representation of the "Multiplier Effect" in the Brownfield Redevelopment Cluster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Remediation consulting firms
Engineering consulting firms
Planning consulting firms
Legal, insurance and financial services firms
Chemical analysis firms
Drilling contractors
Excavation contractors
Demolition contractors
Waste management contractors
Surveying and mapping firms
Wholesalers, retailers and lessors of lab equipment
Wholesalers, retailers and lessors of heavy machinery
Fuel delivery firms
Heavy equipment maintenance firms
Manufacturers of lab equipment
Manufacturers of machinery and parts
Wholesalers and refiners of fuel oils

Annex 4

Profiles of Selected International Activities on Brownfield Redevelopment

This annex reviews how five industrialized countries have approached brownfield redevelopment:[5]

- United States
- United Kingdom
- France
- Germany
- Italy

Over the past decade, these countries have made significant progress in overcoming the challenges posed by brownfields. Each country surveyed has adopted a variety of legislation and policies affecting brownfield redevelopment. Each has a number of worthwhile initiatives and programs underway. However, only the United States and the United Kingdom have truly coordinated national efforts in place to address key barriers and encourage brownfield redevelopment.

A review of this international experience can help identify the key factors in launching and implementing a successful brownfield redevelopment strategy in Canada.

1. United States

Scope of the Brownfield Problem

The U.S. Environmental Protection Agency (EPA) estimates that there are between 500,000 and one million brownfield sites in the country. More than $2 trillion worth of property within the U.S. is devalued due to the presence of environmental hazards. The total cost of restoring these sites to productive use may be in excess of $650 billion.[6]

Policy Approaches

The U.S. has addressed the challenges of contaminated sites for many years. Specific initiatives targeted to brownfields began in 1993, with the EPA's Brownfields Economic Redevelopment Initiative. In 1995, the EPA announced its Brownfields Action Agenda. Even as the commitments laid out in the Action Agenda were met, it became clear that the momentum for ongoing brownfield redevelopment could only be sustained with further federal, state and municipal involvement as well as greater private sector participation.

In 1997, the Clinton Administration combined the resources of more than 15 federal agencies to expand the brownfields initiative and created the Brownfields National Partnership Action Agenda. This provided a framework for cooperation among governments, businesses and non-governmental organizations. The U.S. federal program currently operates in conjunction with the brownfield programs of 48 states and more than 300 local governments. Federal and state jurisdictions continue to strive for harmonization of the legal, scientific and financial incentives designed to spur the development of brownfields.

In general, U.S. federal brownfield incentives are targeted to state and local governments, and few are applicable directly to the private sector. In essence, the states and local governments have become "partners" in the delivery of federal programs. This approach has been criticized as an inefficient and indirect means of providing funding. For example, administrative structures are required at the federal, state and local government level in order to deliver brownfield incentive programs. On the other hand, such a system promotes greater accountability and flexibility to meet specific local community needs.

Progress

Federal Government

Federal actions on brownfield redevelopment focus on pilot projects, revolving loans, small grants and technical assistance. About 20 federal agencies are involved, including the EPA, the Department of Housing and Urban Development (HUD), the Economic Development Administration (EDA), the Small Business Administration (SBA) and the Department of Agriculture (USDA) (see Table A4-1 for a summary of financial assistance incentives, by agency).

The EPA provides three types of financial incentives:

- Demonstration Pilot Grants of up to $200,000 each to states, cities, towns, counties and tribes across the U.S. to conduct environmental assessment-related activities and develop remediation and redevelopment plans
- Cleanup Revolving Loan Funds of up to $500,000 ($1 million under the new *Small Business Liability Relief and Brownfields Revitalization Act*) awarded to states, cities, towns, counties and tribes to provide low-interest loans to carry out cleanup activities at brownfield sites
- Job Training Pilot Grants of up to $200,000 each to provide job training for residents of communities affected by brownfields.

Since its inception in 1993, the U.S. EPA's brownfield program has provided over $280 million in pilot project funding and grants to spur brownfield projects. The EPA reports that this has levered $4 billion in public and private investment and over 19,000 cleanup, construction and redevelopment jobs.

The Cleanup Revolving Loan Fund has been criticized by some observers for having onerous legal, environmental and administrative requirements that hamper its usefulness and effectiveness. New U.S. brownfield legislation is expected to focus more on development financing, conventional development underwriting and loan evaluation related to cleanup. This should help to make the Cleanup Revolving Loan Fund program more useful. The key lesson that can be learned from this financial incentive program is the need for harmony between federal legislation and the legal, environmental and administrative requirements of any financial incentive program.

In 1997, the U.S. federal government passed the *Taxpayer Relief Act* (TRA), which included a new tax incentive to spur the cleanup and redevelopment of brownfields. The TRA allows environmental cleanup costs to be fully deducted from income in the year they are incurred. The $1.5 billion TRA incentive for brownfields was expected to lever $6 billion in private investment and return 14,000 brownfields to productive use. However, the TRA incentive has not been widely used. Possible reasons include developer misunderstanding of the tax incentive, procedural requirements that are considered cumbersome, a perception that the tax credit is insignificant and does not justify the amount of work (and related costs) needed to get the tax credit, and the desire of some developers to re-sell the property as quickly as possible. The conclusion is that an income tax deduction for remediation expenditures may not be effective unless the credits are significant and procedural requirements are minimal.

State Governments

At the state level, departments of environment and economic development generally deliver programs related to voluntary cleanup, liability relief, tax abatement, technical assistance and low-cost loans.

A recent study compared the performance of states offering fairly comprehensive brownfield programs with that of states offering only limited programs. The study correlated the success of individual state programs (as measured by the number of brownfield sites remediated under the program) with the presence or absence of six key program features:

- civil and regulatory liability
- responsible person protection
- tax incentives
- loans, grants and guarantees
- risk-based remediation
- memorandum of agreement.

Of the 48 states with brownfield programs, 18 had either five or all six of the key features, 20 had three or four, while 10 had fewer than three of the features. Those states with five or six of the features far outperformed the others, accounting for more than 12,000 remediated sites, compared with 3,333 for the second group and only 142 for the third group (see Table A4-2).

Differences in history and location did not appear to account for the differences in results. The study found that states that are otherwise similar in character, but which incorporate a different range of features into their brownfield programs, often obtain significantly different levels of site remediation. For example, New York and New Jersey are neighbouring states with similar industrial legacies. Moreover, market forces in both states have failed on their own to stimulate significant brownfield redevelopment. Yet, after each state implemented a brownfield program, widely different results were achieved: New Jersey, with five of the key program features, has remediated 2,341 sites; New York, with only three program features, has remediated only 265 sites. This appears to confirm the correlation between program performance and feature selection.

The study also considered the relative importance of each of the program features, concluding that three features were particularly important success factors: liability protection, risk-based remediation, and loan and grant programs.

Local Governments

Local government initiatives in the U.S. generally focus on tax-increment financing incentives, tax abatement and low-cost loans. Examples of many brownfield "success stories" at the local level in the U.S. can be found through the EPA's Internet site:
http://www.epa.gov/swerosps/bf/success.htm

Future Challenges

Future work on brownfield redevelopment in the U.S. likely will focus on streamlining the administration and strengthening the coordination of the various federal, state and local initiatives.

Table A4-1 U.S. Federal Financial Assistance Programs Applicable to Brownfield Redevelopment

Loans

- *Economic Development Agency (EDA) Title IX (capital for local revolving loan funds)*
- *Housing and Urban Development (HUD) funds for locally determined Community Development Block Grant (CDBG) loans and "floats"*
- *Environmental Protection Agency (EPA)-capitalized brownfield revolving loan funds*
- *Small Business Administration (SBA) microloans*
- *SBA Section 504 development company debentures*
- *EPA-capitalized clean water revolving loan funds (priorities set/programs run by each state)*
- *Loan guarantees*
- *HUD Section 108 loan guarantees*
- *SBA Section 7(a) and Low-Doc programs*

Grants

- *HUD Brownfield Economic Development Initiative (BEDI)*
- *HUD Community Development Block Grants (for locally determined projects)*
- *EPA assessment pilot grants*
- *EDA Title I (public works) and Title IX (economic adjustment)*
- *Department of Transport (DOT) (various system construction and rehabilitation programs)*
- *DOT transportation/community system preservation (TCSP) pilots*
- *Army Corps of Engineers (cost-shared services)*

Equity capital

- *SBA Small Business Investment Companies*

Tax incentives and tax-exempt financing

- *Targeted expensing of cleanup costs (through December 31, 2003)*
- *Historic rehabilitation tax credits*
- *Low-income housing tax credits*
- *Industrial development bonds*

Tax-advantaged zones

- *HUD/U.S. Department of Agriculture (USDA) Empowerment Zones (various incentives)*
- *HUD/USDA Enterprise Communities (various incentives)*

Source: Regional Analytics Inc., "A Preliminary Investigation into the Economic Impact of Brownfield Redevelopment Activities in Canada," unpublished background document prepared for the NRTEE, 2002.

Table A4-2 Performance of State Brownfield Redevelopment Programs Correlated with Program Features

	Programs with 5 or 6 key features	Programs with 3 or 4 of key features	Programs with less than 3 key features
No. of states	18	20	10
Total no. sites remediated	12,167	3,333	142
Average no. remediated sites per state	676	167	14

Source: Based on Ahab Abdel-Aziz and Shari Elliott, "Facilitating a Brownfield Redevelopment Strategy for Canada," unpublished background document prepared for the NRTEE, 2001.

2. United Kingdom

Scope of the Brownfield Problem

Across the U.K., brownfield sites result from a wide range of former industrial activities, including mineral extraction, coal and steel production, gasworks, electrical generation, traditional engineering-based activities, transport infrastructure and chemical production, as well as a wide range of more minor industrial activities. In 1996, the Department of Environment (DOE) (now part of the Department for Environment, Food and Rural Affairs—DEFRA) published a series of nearly 50 "industry profiles," which provide information on the history of different industrial activities in the U.K. and identify the likely contamination problems to be found on the sites involved.

A National Land-Use Database was started in 1998 to assist in the identification of previously developed sites that might be, or might become, available for new development uses. Work continues on populating the database, but interim statistics released in May 1999 reveal there are some 33,000 hectares of land in England that are previously developed and either vacant or derelict, and that might be suitable for redevelopment.

Experience suggests that many potential brownfield sites would not be revealed by such database or survey exercises, because they become brownfield (sometimes only for a short period) as their previous use comes to an end.

Policy Approaches

The key national land use policy aims "to promote a sustainable pattern of physical development and land and property use in cities, towns and the countryside." It includes the following goals for promoting brownfield redevelopment:

- economic and social regeneration of the surrounding areas
- environmental improvement of the sites themselves
- reduction in "development pressure" on greenfield sites.

This objective is backed up by specific Public Service Agreement (PSA) targets for 60 percent of new housing to be provided on previously developed land or through conversion of existing buildings, and for brownfield land to be reclaimed at a rate of over 1,100 hectares per annum by 2004, reclaiming 5 percent of current brownfield land by 2004 and 17 percent by 2010.

The land use objective is also specifically linked to a further objective "to enhance sustainable economic development and social cohesion through integrated regional and local action, including the promotion of an urban renaissance."

In 1999, an Urban Task Force set up by the national government examined the current and potential role of national government and other public sector bodies in urban policy, including the promotion of brownfield redevelopment. Its report, *Towards an Urban Renaissance*, made a series of detailed recommendations for future action. The government set out

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- people shape the future of their community, supported by strong and truly representative local leaders
- people live in attractive, well-kept towns and cities that use space and buildings well
- good design and planning make it more practical to live in a more environmentally sustainable way, with less noise, pollution and traffic congestion
- towns and cities are able to create and share prosperity, investing to help all their citizens reach their full potential
- good quality services—health, education, housing, transport, finance, shopping, leisure and protection from crime—meet the needs of people and businesses wherever they are.

The white paper included specific proposals to "use the tax and planning systems to bring previously developed brownfield sites and empty property back into constructive use, turning eyesores into assets."

In general, comprehensive systems of land use planning regulations have been used to control *how* redevelopment takes place on brownfield sites, and not to force it to happen.

The main legal control on any development is the system of land use planning set out in the *Town and Country Planning 1990*.[7] Any development requires specific planning permission, which may control not only the location of development, but also the nature of that development and the way it is carried out. In the context of brownfield redevelopment, the planning permission may contain specific conditions relating to site investigation and assessment and, where appropriate, remediation of contamination. Guidance to planning authorities on contaminated land aspects of planning is set out in Planning Policy Guidance note PPG 23 *Planning and Pollution Control*. This guidance is currently being revised, with a view to publishing specific planning guidance for development on land that may be affected by contamination. Brownfield redevelopment projects above a certain size also require environmental impact assessments as part of the planning approval process.

In addition, the Building Regulations impose a system of controls over the details of construction of any building. These cover a range of issues from the integrity of the foundations, through to issues such as disabled access to public buildings. They include specific requirements to ensure that buildings and building services are protected from the effects of any contaminants in the ground under the building.

Land remediation activities may need prior regulatory approval under the waste management licensing system under Part II of the *Environmental Protection Act 1990* (which implements the European Waste Framework Directive) or the system of Integrated Pollution Prevention and Control (which implements the directive of the same name).[8] Some remediation processes are defined (under the directive) as "waste disposal" or "waste recovery" operations, and therefore have to be licensed to ensure that they are carried out without risk to human health and the environment. Other licensing regimes may also be relevant in some cases (e.g. the Groundwater Regulations 1999). The government is currently reviewing the operation of waste management and other controls as they apply to land remediation projects, and may introduce a more specific form of regulatory control in the future.

Progress

In many urban areas of the U.K., the redevelopment of brownfield sites is led largely by the private sector. A significant proportion of projects take place with very little direct involvement from public bodies and government agencies, except in their roles as regulators, issuing and enforcing necessary approvals and legal permissions (such as town and country planning). This private sector focus may be the result of a combination of the following four factors:

- the fact that most of the current brownfield land stock is already privately owned
- the particular "economic history" of the sites and the industries that were formerly on the land
- the current state of the national and regional economies and, in particular, the demand for land in urban areas

- conscious political choice by successive national governments.

However, there are also significant government programs to promote and support brownfield redevelopment. These programs can be split into four types:

- spatial planning
- technical support
- financial support
- direct development by public bodies and agencies.

Spatial Planning

The system of "town and country planning" promotes brownfield redevelopment largely by inhibiting or preventing development projects on greenfield sites, and by making brownfield land available for development. This is brought about by a hierarchy of:

- national planning policy (set out by national government in Planning Policy Guidance notes)
- regional planning policy (set collectively by local government bodies in the region, and the regional development agency), which also includes overall "structure" planning for the region
- local structure and development plans (set by the county and district councils), which make zoning decisions for the future use of particular areas of land, and
- individual decisions on applications for planning permission (made by local planning authorities), which normally should conform with the relevant development plan.

This structure of guidance cascades the national Public Service Agreement target for 60 percent of housing to be on previously developed land or in converted buildings into more detailed regional and local targets. To promote the achievement of these targets, there is a new requirement, set out in a DETR Planning Policy Guidance Note, for a "sequential test" for new developments. This test means that a local planning authority must first satisfy itself that there are no suitable and available sites that have been previously developed before it can allocate any greenfield sites for new housing projects.

Technical support

Technical support takes both proactive and reactive forms. On the proactive side, national government and other private sector-led groups fund research and development and the development of "best practice" advice to assist the development and construction industries in working on brownfield sites. On the reactive side, the focus is on removing factors that might inhibit brownfield redevelopment. This work includes:

- research and development on the application of new remediation techniques and technologies
- confidence-building initiatives with the financial and property sectors
- setting out a system of liability for contaminated land
- reviewing the licensing system for land remediation activities
- wider policy development on issues such as "land assembly" for larger development projects, and changes to the system of compulsory purchase by public authorities.

Financial support

Brownfield redevelopment is eligible for direct public sector financial support where this is necessary to achieve social and economic policy objectives. In some regions, public sector intervention is essential to ensure redevelopment. Financial support for the private sector can take a number of forms, such as:

- grant aid, either for particular elements of the costs of development or as "gap funding"
- support for loans, including payment of interest and guarantees
- other guarantees (e.g. income stream guarantees, support for warranty purchase)
- partnership projects with risk and profit sharing.

Direct funding is generally provided by national government through arm's-length public sector regeneration agencies, such as English Partnerships and the network of regional development agencies in England, the Welsh Development Agency and Scottish Enterprise. In some cases, the funding is provided through local authorities, either directly from national government or via the national or regional regeneration agencies. In addition to these national sources of funding, other projects receive support through Objectives 1 and 2 of the European Regional Development Fund and other structure funds.

Recent years have seen a slowdown in government funding for private sector schemes due to legal problems. The European Commission has identified the main programs involved as "state aids" and therefore potentially contrary to European Union competition policy. This means that the programs, and in some cases individual projects, have to be approved in advance by the Commission. The move also places strict limits on the geographic availability of financial support for private sector development and on the amount of support for any individual project.

Other indirect financial tools have been used in the past, such as tax breaks for development projects in designated "enterprise zones." The 2000 urban white paper committed the national government to investigating new fiscal instruments, in particular sales tax reductions for properties in economically disadvantaged areas and tax credits for cleaning up contaminated land. The *Finance Act 2001* has taken forward this second idea, allowing companies to offset 150 percent of the cost of remediating contaminated land against the profits on which they pay corporation tax. In some cases, this tax allowance can be claimed as a payable tax credit.

Direct Development

The public sector regeneration agencies and local authorities also carry out direct development projects of the following kinds:

- "fully worked up" developments
- preparation of "development platforms" for subsequent development by the private sector
- simple site clearance projects
- provision of roads and other infrastructure on or near potential redevelopment sites.

Future Challenges

Gaps and obstacles in brownfield redevelopment have been reviewed extensively in the U.K. by a number of organizations, including the Parliamentary Office of Science and Technology and the Urban Task Force.

Key challenges identified for the U.K. include:

- improving understanding of the social, economic and environmental factors related to brownfield redevelopment
- quantifying and assessing the contribution made by brownfield redevelopment to sustainable development
- integrating brownfield considerations into other aspects of regeneration, such as architecture and social development
- building confidence in brownfield regeneration (e.g. risk communication methods)
- developing tools to promote good practice in brownfield redevelopment (e.g. by demonstration of technologies, better integration of technical approaches with management needs)
- ensuring holistic approaches to managing large areas of brownfield, especially in dealing with regional groundwater issues
- maximizing the benefits from brownfield regeneration (e.g. in terms of recycling and reuse of resources on the sites)
- developing cost-effective methods for assessing sites for contamination problems
- strengthening the evaluation of contamination management technologies (e.g. in terms of practicability, long-term effectiveness and their wider environmental and resource-use impact)
- improving approaches for communicating with and involving stakeholder groups.

For the future, a major issue is the desire of developers for a "one-stop shop" approach to licensing and approvals. Many aspects of the current regulations are already under review, in particular the licensing of remediation activities and the guidance issued to planning authorities.

3. France

Scope of the Brownfield Problem

Since the 1970s, brownfield sites have been attracting considerable interest in some former industrial regions of France (in particular, Lorraine and Nord–Pas de Calais), and more recently in other regions because of extensive urban development (Paris Île-de-France and Rhône-Alpes).

It is estimated that there are about 200,000 former industrial and service sites that can be considered brownfields, as well as about 200 former mines. The stock of industrial brownfields is estimated at about 20,000 hectares, concentrated in the traditional industrial areas of the northern and eastern part of the country, especially in the region of Nord–Pas de Calais (9,400 hectares) and Lothringen (2,500 hectares). Most of these are large sites (more than 10 hectares) in suburban or outlying locations.

The stock of brownfields has not decreased in the last decade despite considerable reclamation activities.

Policy Approaches

Long-term policies and programs exist in the traditional industrial regions. Since the 1980s, however, specific brownfield reclamation programs have been developed in the context of the national "contact de plan" (funded by the state, region and the European Union).

France has no specific brownfield redevelopment legislation. Instead, legal aspects are addressed through:

- law on environmental permits for industrial sites
- the *Mining Code*, for the former mines (the Code was recently modified to take into account the closing and abandonment of mine sites)
- the *Civil Code* (liability on harm caused by owned properties)
- the *Urban Planning Code* for the redevelopment of brownfield sites in the urban context
- some specific regulations on historical building preservation and requalification.

Due to the regional dominance of derelict land, a joint intervention of national, regional and local authorities has been necessary. As it was clear from the outset that it would not be possible to find new uses for this land immediately, the derelict land strategy developed in 1986 concentrated on rapid improvement through large-scale landscape treatment—to overcome the negative image of derelict land. Preparation of the land for new uses, which involves much higher costs, will be a medium- and long-term task.

The strategy's priorities were based on:

- rapid identification of derelict land
- the establishment of a regional development agency
- a clear and comprehensive methodology (known as "requalification sommaire")
- adequate and regular funding
- a partnership of all parties involved
- support for preparing and developing derelict land for new projects.

The derelict land strategy involves:

- demolition as well as clearing work in the area
- construction of terraces, planting and use of screening trees
- construction of recreational paths
- where necessary, treatment of contamination using all legal instruments to make the polluter pay.

Subsequently, the properties are managed on a regional level and in individual cases left to the free market. The regional development agency, Établissement Public Foncier de la Métropole Lorraine (EPML), is responsible for implementation of this strategy.

Progress

Through financial support from the state, the regional council, the agency itself and the European Fund for regional development, a total of 120 million euro was made available between 1986 and 1997 to implement the new derelict land strategy (Lorraine Region, EPML and the French government provided two thirds of the funding, and one third came from the EU).

By 1997, 3,350 hectares of derelict land had been treated, representing, 97 brownfield sites in 109 communities.

Since treatment, 30 percent of the sites have been reused for economic purposes, 22 percent remain available, 17 percent are used for parks, 27 percent have designated for nature, and 4 percent have been developed for housing. Thanks to the efforts of EPML, the industrial land owners were persuaded to sell their properties at reasonable prices. At the same time, partial sales by owners of attractive and unencumbered properties were prevented.

The strategy has succeeded in linking the interests of the private property owners, the community and other actors. Regional stakeholders are cooperating in a common network with research activities and international services.

Future Challenges

Work is underway to address the following challenges:

- the definition of liabilities related to soil contamination
- current land planning tools that do not take soil contamination into account (bringing reclamation work to a halt when pollution is suspected or established).

4. Germany

Scope of the Brownfield Problem

Germany has about 362,000 suspected contaminated sites, with brownfields covering an estimated 128,000 hectares. The presence of brownfields hampers economic development in the affected regions: their unsightly appearance and the risks associated with the environmental hazards are major obstacles for investment. At the same time, demand for greenfield land is increasing, with 129 hectares per day being bought for development.

In the last 10 years, Germany has made a considerable effort to solve the environmental problems arising from contaminated sites. However, the task of revitalizing derelict land and of developing effective concepts for bringing the land back into economic use remains a key challenge.

Policy Approaches

Germany has no special legislation for brownfield redevelopment. Legal aspects are covered by the *Federal Soil Conservation Act*, by regional planning acts and by the Building Code. The *Federal Soil Conservation Act* came into force on March 1, 1999, setting out requirements for contaminated land remediation in terms of country-wide standards for risk assessment and cleanup. The *Soil Protection Act* gives some guidance as to a cleanup plan and a remediation contract. The regional planning acts and the *Building Code* include regulations for unsealing surfaces and restricting greenfield development, and provide basic guidance for the careful handling of soil.

In 1998, the federal environment ministry published the Draft Environmental Program and set the following objectives for brownfield redevelopment:

- rehabilitation of industrial sites and elimination of hazards to human beings and the environment
- reintegration of rehabilitated sites into the economic cycle
- reduction of land consumption from 120 hectares per day (in 1998) to 30 hectares per day by 2020.

Progress

Various development agencies have produced regional brownfield initiatives in the federal states, such as the "Landesentwicklungsgesellschaft Nordrhein-Westfalen." By establishing a property fund in 1982, this region has made the redevelopment of brownfield sites and idle buildings central to its policy of creating an integrated urban development model. The activities of the property fund go beyond the establishment of attractive new business parks. They include:

- placing quality targets in urban construction (e.g. architectural plans for commercial buildings, surrounding landscaping, and recreational areas and facilities) ahead of strict economic considerations
- preserving abandoned industrial architecture that is part of the state's heritage
- safeguarding monuments, such as the coal mine Zollverein XII in Essen and the Landscape Park in North Duisburg, which are now becoming tourist and cultural attractions within the Ruhr area.

To date 2,400 hectares in 178 locations have been purchased in the state. Of these, 971 hectares have already been rehabilitated, developed and placed on the market. About 61 percent of the developed business sites have been sold. Work is underway to place additional land on the market within another two to three years.

One important development involves projects for the International Building Exhibition (IBA) at Emscher Park, completed in 1999. The IBA aimed to serve as a focal point for demonstrating the ecological, economic and social benefits of brownfield redevelopment. The park includes new landscape schemes, technology centres, innovative housing schemes and other activities.

In 2001, the state of Saxony, which has an estimated 18,000 hectares of brownfield sites, launched a new, integrated and interdepartmental brownfield redevelopment program funded by the European Regional Development Fund (ERDF) of the European Commission.

Future Challenges

Key challenges include:

- overcoming developers' preference for greenfield sites, which are easier, cheaper and faster to develop than brownfield sites
- high legal, environmental and financial risks for investors
- lack of integration of environmental and spatial planning policy and procedures
- insufficient awareness of available legal options to enhance the redevelopment of brownfield sites
- few incentives for investors
- overcoming stigmas associated with brownfield properties.

5. Italy

Scope of the Brownfield Problem

Regional governments in Italy are still developing local inventories of contaminated or potentially contaminated sites. Brownfields are concentrated in the northern industrial regions of the country, including Lombardia, Piemonte and Veneto. Properties include old industrial plants such as oil plants, chemical plants, steel and iron works and mining sites.

Policy Approaches

Italy has no specific legislative or regulatory framework for addressing brownfield redevelopment, other than the legislation and funds generally relevant to contaminated site rehabilitation.

In 1998, national legislation was established to provide public funds for a number of selected sites defined as "sites of national interest." These are defined as contaminated sites with special features (e.g. location, heavy environmental contamination, economic and social stresses, urgency of redevelopment) that locally might justify a "brownfield" label. The original list has been expanded by a recent (2001) decree, and there are currently about 40 sites of national interest. The initial public budget for rehabilitation of these sites is over 500 million euro for the next three years.

Progress

Many initiatives are driven by municipal governments in the northern region, hard hit by economic downturns in recent decades. These activities typically involve the private sector, community groups and public authorities. Some projects are co-financed by the European Commission, including:

- "urban pilot projects" (municipalities of Genoa and Venice), financing specific programs for renewal of historical or traditional urban areas
- "municipia" (municipalities of Terni and Trento), a network of towns managing the urban environment.

The municipality of Milan has been particularly active in brownfield redevelopment, constructing 4,300 housing units, four urban parks and commercial services on former brownfield sites. About 700,000 euro has been invested, mainly by private companies.

Future Challenges

Challenges to brownfield redevelopment in Italy include:

- the absence of specific redevelopment programs
- insufficient technical, legal, liability and administrative references
- limited participation by the public
- lack of incentives for investors
- developers' preference for greenfield sites
- overcoming the stigmas associated with brownfields.

Annex 5

Market Failures and Optimal Use of Brownfield Redevelopment Policy Instruments

The following text assesses the potential effectiveness of alternative policy instruments for brownfield redevelopment. It is based on a review and analysis of policy instruments used in the United States and Canada.[9]

This work, which was commissioned by the NRTEE, provides a qualitative social benefit-cost perspective on the effectiveness of alternative policy instruments. The objective was to identify general characteristics of an effective brownfield development strategy, and to rank groups of policy instruments in order of likely effectiveness. Ranking by group recognizes the interactive impact of some policy interventions.

1. Background on Market Failures

Markets, the free exchange of goods and services, do not always work well. When they fail, or are imperfect, actions that increase the collective national wealth may not take place. This is the case for brownfields. There are a number of significant market failures that prevent redevelopment of land, even when the redevelopment would create enough wealth and income to more than repay the cost.

Markets fail when a developer or landowner lacks important information, or when decisions have impacts on those who are not parties to the transaction. In the latter case, redevelopers and landowners will naturally efficiently in their own commercial interests. When there are additional social interests or third-party interests to be taken into account, it is the role of governments to find cost-effective means of introducing these considerations into the private sector decision-making process.

2. Market Failures Relevant to Brownfield Redevelopment

Market failures restricting brownfield redevelopment may be broadly divided into those that cause private developers to:

- undervalue commercial benefits
- overvalue costs
- exclude social and environmental benefits.

The first two categories above are discussed briefly below. They are particularly important to the NRTEE's brownfield redevelopment strategy as they define the "middle tier" of brownfields (Tier 2) for which redevelopment is feasible and likely to attract private interest but where market barriers currently discourage activity. If these market failures can be corrected, then private developers will see redevelopment as profitable and development may proceed. Equally, if the market failures cannot be corrected directly, but can be offset through financial incentives, then development will generate sufficient wealth and income in the tax base to repay the incentives from the public budget. Solving or mitigating these sources of market failure will increase rate of redevelopment for Tier 2 brownfields, with consequent economic, social and environmental benefits.

The third category of market failures (exclusion of social and environmental benefits) is caused by private markets failing to capture collective benefits such as environmental benefits, improved neighbourhoods, preserved wetlands and greenfields, and health impacts not effectively recoverable through court action.

Market Failures that Undervalue Commercial Benefits

These are market failures that cause undervaluing of the income-generating benefits of redevelopment to all affected parties.

- **Third-party wealth and income impacts.** Developers may not account for the positive impacts of redevelopment on the ability of other firms and assets in a city to produce wealth. These impacts are particularly significant on lands surrounding a redevelopment project. Impacts on neighbouring property values have been estimated at 10 percent for commercial, 30 percent for residential and 50 percent for neighbouring brownfields.
- **Infrastructure cost savings.** Developers choosing between greenfields and brownfields may not account for the infrastructure cost savings from the increased compactness of a city. These may be in the order of $18,000 per hectare annually.
- **Transportation cost savings.** Developers choosing between greenfields and brownfields may not account for the impacts on congestion and related indirect transportation cost savings. These may be in the order of $66,000 per hectare annually.
- **Municipal services cost savings.** Owners of brownfields deciding whether to sell or redevelop will not fully account for the ongoing burden of the vacant land on municipal services. These include fire, police and other services to surrounding land whose security is compromised.

Market Failures that Overvalue Costs

These market failures cause potential developers to assess higher project costs than the true cost to society.

- **Tax system impediments.** Aspects of the tax system can artificially increase costs by placing incentives in the wrong place. For example, land remediation costs are immediately deductible as an expense for current landowners (advantageous for them), but must be capitalized and written off over time by any redeveloper as part of redevelopment costs.
- **Regulatory risk.** High rates of return are required by any potential investor because regulators may apply future increases in cleanup standards retroactively. Liability is *joint and several* so that even minor participants can be liable for the whole of the cleanup costs.[10] This makes the project more risky, especially when normal market mechanisms for diversifying risk are not functioning (such as insurance markets—see below). This risk overstates the true cost to society, which must bear the risk of unremediated land if nothing is done.
- **Civil risk.** The same *joint and several* liability extends to private lawsuits for health or environmental damages arising from brownfields. Redeveloping land increases the number of land users and potential claimants. Participants cannot escape from the liability through development and sale of the land, and new participants who might help are discouraged.
- **Information asymmetries.** When buyers know more than sellers about the environmental risks of land, problems of *adverse selection* are introduced, and some exchanges of land that should take place do not. The problem is compounded by the unwillingness of sellers to permit their land to be assessed. Discovery of contamination may trigger regulatory requirements for costly cleanup, without assurance that the buyer will remain interested.
- **Insurance market failure.** Developers are often unable to adequately mitigate civil risk and regulatory risk in the normal way through insurance. Some environmental insurance products are available that can cap cleanup costs during redevelopment, or cover future pollution liabilities. However, the costs of these products is often too high to be feasible for smaller projects.
- **Lack of access to capital.** Risk issues combined with insurance market failure reduce the value of land as collateral, since the lender may end up in control of the land with the attendant risks previously experienced by the owners. In addition, it is very difficult to obtain capital for the early development phase since, by definition, this is prior to the land being assessed and the project going ahead.
- **Regulatory delays.** Governments themselves create additional risks to investors through undue delay in regulatory processes. This includes delays in government programs to redevelop brownfields. For

example, the U.S. Environmental Protection Agency recently instituted attractive special tax provisions allowing expensing of cleanup costs for qualifying sites over a three-year period. Out of an estimated 30,000 qualifying sites, only a few dozen applied. Process delays, for example those caused by the need to link with qualifying provisions of other government programs, were suggested as one reason for the low uptake. U.S. state brownfield programs appear to receive higher investor interest when processes include legislated time limits.[11]

- **Stigma and risk perception.** The ability of developers to turn their projects over to final users may be limited by exaggerated perceptions of risk associated with remediated brownfields.
- **Economies of scale in institutional development.** The decision of each developer regarding potential projects does not take into account the collective impact of increased brownfield development on remediation costs. Remediation becomes cheaper as the volume of projects increases. Ideally, volume leads to the development of professions and specialist firms that can lower costs. In turn, the existence of new professions improves the ability to provide standardized environmental insurance products, permitting even lower costs through the diversification of risk.

Solving or mitigating these sources of market failure will increase the rate of redevelopment for Tier 2 brownfields, with consequent economic, social and environmental benefits.

3. Key Findings

A variety of policy instruments is available to address the sources of these market failures. Table A5-1 lists some of the most commonly used instruments, summarizing findings on the market failures addressed and the effectiveness of the instrument. The instruments recommended in the NRTEE strategy are indicated in the *Policy Instrument* column by recommendation number.

The review of brownfield policy instruments also produced the following conclusions on the desirable characteristics of an effective brownfield redevelopment strategy:

- **Strategic measures should address both risk *and* financial incentives.** While a great deal of discussion has occurred around the market failures stemming from uncontrolled risks faced by developers, correcting this alone would not lead to full realization of the benefits available from redevelopment of Tier 2 land. The value of third-party wealth creation would still be missing in the decisions of private sector redevelopers. Available literature suggests that the magnitude of these benefits is significant. To introduce this factor into private decision making, some form of financial incentive is needed.
- **Project-by-project assessments are required.** To effectively deliver financial incentives, whether as low-interest loans or outright grants, a strategy will require components that assess the need for incentives on a project-by-project basis. The alternatives, such as broad rules-based tax credits, have two drawbacks if used exclusively: first, their effectiveness might be diluted by transfers to Tier 1 sites (i.e. those sites where the market values greatly exceed the costs of remediation and where redevelopment might proceed in the absence of assistance); and, second, there is a risk of transferring the entire social benefit of redevelopment to the redeveloper, at the expense and administrative cost of the taxpayer.

These conclusions are reflected in the package of policy instruments recommended by the NRTEE.

Table A5-1 Effectiveness of Commonly Used Policy Instruments for Brownfield Redevelopment

POLICY INSTRUMENT	MOST RELEVANT MARKET FAILURES ADDRESSED	EFFECTIVENESS FOR REDEVELOPMENT
Tax Reforms/Incentives		
Deductible remediation expenses. (NRTEE Rec. 1.1) Allows redevelopers to deduct remediation costs as a current expense, rather than capitalizing as part of redevelopment costs. The tax benefit is moved to the year the expense is made, rather than spread over future years.	Tax system impediments	**High** – when combined with simple rules to limit abuse, such as a percentage cap on share of expenses, or professional certification of requirements
Tax credits. Provides funds through tax reductions matching expenditures on remediation of brownfields.	Undervaluing third party wealth impacts	**Low-Medium** – if unrestricted, credits could go to Tier 1 sites **High** – if restricted to land pre-qualified as Tier 2, and for historical pollution only
Abatements. Includes abatements of property taxes, development charges, planning fees, etc.	Undervaluing infrastructure, transportation, and municipal services cost savings.	**High** – if applied on a project specific, as needed basis.
Tax forgiveness. (NRTEE Rec. 1.2) Historical taxes owing on lands, such as federal liens, may be forgiven.	Tax system impediments	**High** – if applied on a project specific, as needed basis; liens may be worthless if land not redeveloped; application limited to where liens exist
Direct Financial Assistance		
Grants for assessment/cleanup. (NRTEE Rec. 1.5) Money given to support site assessment and remediation.	Information asymmetry Capital market failures Third party wealth impacts	**High** – if applied on a project specific basis; levels playing field with greenfields and delivers funds at early stage when external capital is less available
Grants for project support. (NRTEE Rec. 1.5) Money given directly to support a project through grants, free services, etc.	Third party wealth impacts Undervaluing infrastructure, transportation and municipal services cost savings	**Medium** – if applied on project specific, as needed basis; potential for excessive funding and funding of Tier 1 or Tier 3 projects

POLICY INSTRUMENT	MOST RELEVANT MARKET FAILURES ADDRESSED	EFFECTIVENESS FOR REDEVELOPMENT
Capital Market Interventions		
Assumption of liability. Through individual project agreements, governments can assume the liability for future civil and regulatory risk once given remediation requirements are met.	Regulatory and civil risk Lack of access to capital Insurance market failure	**Low** — public institutions do not manage this form of accumulated risk well; as the accumulated risk mounts, public cost of borrowing is affected.
Remediation loans. (NRTEE Rec. 1.4) Loans may be for assessment and remediation.	Lack of access to capital	**High** — if applied on a project specific, as needed basis, and in combination with other measures. Access to capital is delivered early in project where market failure is greatest; however, administrative costs can be a significant deterrent to applicants where the program is stand alone.
Project loans. (NRTEE Rec. 1.4) Low-interest loans may be provided through devices such as revolving funds. Funds "revolve" by using loan repayments (principal and interest) to provide new loans.	Lack of access to capital	**High** — if applied on project specific, as needed basis; the subsidized interest rates provide modest financial support, while overcoming a key market failure.
Loan guarantees. An alternative to direct lending; a portion of or all loans to a project may be guaranteed.	Lack of access to capital	**Medium** — as with assumption of liability, public bodies do not manage this form of accumulated risk well; if a high percentage of a loan is guaranteed, the public body is effectively making the loan directly with weakened due diligence; if a low percentage of a loan is guaranteed, the impact on the project is weak.
Mortgage insurance. (NRTEE Rec. 1.3) A specific form of loan guarantee where the loan is secured by the land being redeveloped.	Lack of access to capital Insurance market failure	**High** — in Canada, there is a market making institution in the form of the CMHC, which has the ability to manage portfolio risk and ensure appropriate degrees of coinsurance and precaution by primary lenders.
Lender liability limits. (NRTEE Recs. 2.2, 2.3) Lenders, especially those that assume control of land after mortgage defaults, are protected from regulatory and/or civil liability from pollution and cleanup requirements.	Lack of access to capital Regulatory and civil risk	**High** — removes a major barrier for mortgage lenders, who might otherwise find themselves full bearers of civil and regulatory risk in the event of loan default; removes the value of land as collateral.
Civil Law Reform		
Time limits. (NRTEE Rec. 2.3) A limit may be placed on how long someone may be held liable after publicly approved remediation has taken place. This allows closure of risk at least in terms of time.	Insurance market failure Civil risk Lack of access to capital	**Medium** — with the assistance of land registry and public notice process; shifts burden onto claimants after time limit; places time horizon on risk but leaves quantity of claim open for all parties.

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Loan guarantees. An alternative to direct lending; a portion of or all loans to a project may be guaranteed.	Lack of access to capital	**Medium**—as with assumption of liability, public bodies do not manage this form of accumulated risk well; if a high percentage of a loan is guaranteed, the public body is effectively making the loan directly with weakened due diligence; if a low percentage of a loan is guaranteed, the impact on the project is weak
Mortgage insurance. (NRTEE Rec. 1.3) A specific form of loan guarantee where the loan is secured by the land being redeveloped.	Lack of access to capital Insurance market failure	**High**—in Canada, there is a market-making institution in the form of the CMHC,* which has the ability to manage portfolio risk and ensure appropriate degrees of coinsurance and precaution by primary lenders
Lender liability limits. (NRTEE Recs. 2.2, 2.3) Lenders, especially those that assume control of land after mortgage defaults, are protected from regulatory and/or civil liability from pollution and cleanup requirements.	Lack of access to capital Regulatory and civil risk	**High**—removes a major barrier for mortgage lenders, who might otherwise find themselves full bearers of civil and regulatory risk in the event of loan default; removes the value of land as collateral
Civil Law Reform		
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POLICY INSTRUMENT	MOST RELEVANT MARKET FAILURES ADDRESSED	EFFECTIVENESS FOR REDEVELOPMENT
Proportionate liability (NRTEE Recs. 2.3, 2.4) Liability can be limited to a party's role with respect to the source of pollution. In the current regime, a minor player may bear the whole cost of a claim.	Insurance market failure Civil risk Lack of access to capital	**High** — allows new parties, such as redevelopers, to enter picture and be accountable for their own actions only, not historical acts of others; makes risks more knowable and controllable
Transferability (NRTEE Rec 2.1) Parties may pay others to take on the full liability for future claims. For example, a landowner may pay a redeveloper or a specialist firm in land remediation to assume full risk.	Insurance market failure Civil risk Lack of access to capital	**Low** — potentially very effective in promoting given brownfields, but opens the way for strategic behaviour that makes future pollution and cleanup more attractive than pollution prevention
Regulation		
Force Majeure. Aggressive public pursuit of site assessments and subsequent cleanups as required by the regulatory framework.	All cost-related market failures	**Low** — this is a Tier 3 strategy, not Tier 2. It requires significant funding since the costs of forced cleanups may not be fully recoverable from the liable parties; the approach has a chilling effect on any involvement of redevelopers for Tier 2 land, since it increases perceived regulatory risk
Certificates of compliance (NRTEE Recs. 2.2, 2.6) Government approval of remediation efforts, usually accompanied by a commitment not to take further regulatory or administrative action except under specific circumstances.	Regulatory risk	**High** — relieves redevelopers of further regulatory risk; after meeting requirements, they are "done"; although civil risk remains, the larger perceived risk is from government, which has the funds and instruments to pursue cases
Flexible standards (site-specific assessment) (NRTEE Rec. 2.5) In exchange for restrictions on future land use, allows sites to meet remediation standards appropriate to the land use.	All cost-related market failures	**Medium** — with land registry to implement ongoing use restrictions; makes redevelopment feasible where otherwise not, but creates ongoing institutional requirements for monitoring containment procedures, etc.
Public insurance funds (NRTEE Rec. 2.4) A complement to measures limiting regulatory risk. A compensation fund to pay for cleanups required after owners or redevelopers are released from responsibility. Financed from premiums from same.	Regulatory risk	**High** — if risk controlled through project-by-project screening; a needed complement to certificates of compliance in order to ensure a source of financing for cleanups as new pollutants or toxic effects are discovered

POLICY INSTRUMENT	MOST RELEVANT MARKET FAILURES ADDRESSED	EFFECTIVENESS FOR REDEVELOPMENT
Information		
Training/capacity building. (NRTEE Rec. 3.1) Ensures public and private sector actors share full and common understanding of the policy instruments and methods available for brownfield redevelopment.	Regulatory delay Information asymmetries Insurance market failures	**High** – e.g. it has been suggested that a significant contributor to poor markets for environmental risk insurance products is lack of knowledge on the part of municipal officials responsible for land and risk management
Technology dissemination. (NRTEE Rec. 3.2) Information on the most cost-effective practices shared among key actors and/or demonstrated in pilot projects.	Information asymmetries	**High** – awareness of feasibility of best practices increases likelihood that redevelopers will at least assess potential projects
Public information. (NRTEE Rec. 3.3) Information on social value and safety of brownfield redevelopment delivered to the public.	Regulatory delays Stigma and risk perception	**High** – positive public support can reduce delay in municipal approval processes and increase acceptance of redeveloped sites as places to live and work
Institutional Development		
Standards of practice. (NRTEE Rec. 2.5) Development of standards of practice for site assessment and remediation, ideally integrated with regulatory processes and requirements.	Regulatory delays Economies of scale Insurance market failures	**High** – in association with other policy instruments; common and integrated standards of practice
Deed registration. A public system of registering environmental remediation history and related land use restrictions.	Regulatory delays	**High** – as a complement to other policy instruments such as flexible standards of remediation
Land pre-qualification. Programs to pre-qualify land as eligible for other brownfield redevelopment initiatives.	Regulatory delays Economies of scale Insurance market failures	**High** – reduces regulatory delay in processing project proposals and also provides a means to more effectively focus other policy instruments on Tier 2 land
Direct Redevelopment		
Land reclamation banks. Agencies may be created either publicly or privately to hold brownfields, remediate them and return them to market.	All cost-related market failures	**Low** – ties up considerable funds and public initiative for work that could be encouraged on a private basis with greater flexibility by redevelopers

*Canada Mortgage and Housing Corporation

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Certificates of compliance. (NRTEE Recs. 2.2, 2.6) Government approval of remediation efforts, usually accompanied by a commitment not to take further regulatory or administrative action, except under specific circumstances.	Regulatory risk	**High**—relieves redevelopers of further regulatory risk; after meeting requirements, they are "done"; although civil risk remains, the larger perceived risk is from government, which has the funds and instruments to pursue cases
Flexible standards (site-specific assessment). (NRTEE Rec. 2.5) In exchange for restrictions on future land use, allows sites to meet remediation standards appropriate to the land use.	All cost related market failures	**Medium**—with land registry to implement ongoing use restrictions; makes redevelopment feasible where otherwise not, but creates ongoing institutional requirements for monitoring containment procedures, etc.
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Institutional Development		
Standards of practice. (NRTEE Rec. 2.5) Development of standards of practice for site assessment and remediation, ideally integrated with regulatory processes and requirements.*	Regulatory delays Economies of scale Insurance market failures	**High**—in association with other policy instruments; common and integrated standards of practice
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Annex 6

An Expanded Brownfield Redevelopment Policy Toolkit

Table A6-1 provides a policy tool kit for brownfield management, cleanup and redevelopment. These policy tools are based on initiatives undertaken in various jurisdictions such as British Columbia, Ontario, Quebec, the Maritime provinces and some U.S. states. The tools represent different approaches to brownfield policy. They include comprehensive legislation, financing incentives, planning processes, environmental liability and risk management, education and promotion, administrative practices and monitoring activities that support both private and public sector brownfield activities.

This policy tool kit is not intended to be an exhaustive list of tools available in Canadian provinces and territories. Rather, it is intended as a checklist of the main policy tools that are in use or are being introduced for review by jurisdictions that may not yet have considered them. These tools can be used in any combination and can be refined, improved and augmented to suit policy and program objectives and to fit within specific legislative frameworks.

Many of these tools fit within the strategic direction set out by the NRTEE: applying strategic public investments to upfront costs; establishing an effective public policy regime; and building community awareness of and capacity for brownfield redevelopment.

Table A6-1 Expanded Policy Toolkit for Brownfield Redevelopment

1. Strategic Public Investments to Address Upfront Costs	**Financing Incentive Tools** • Municipal grants and loans provided within a community plan framework (e.g. core area grants, building facade improvement loans, building renovation loans) • Tax increment based municipal grant program for brownfield properties (TIFs) • Tax relief for cleaning up contaminated properties • Property tax freeze and cancellation • Development charge exemptions and reductions • Reduction or waiver of planning fees • Heritage conservation grants or loans • Infrastructure programs • Tax arrears cancellation • Provincial contaminated sites grant program (Quebec)
2. Effective Public Policy Regime for Environmental Liability and Risk Management	**Environmental Provisions** • Regulated risk assessment standards • Regulated site investigation standards • Registry systems for sites that have been cleaned up • Immunity provisions from government administrative orders under certain circumstances or where regulated actions (e.g. cleanup) have taken place • Accountability mechanisms to ensure quality cleanup • Review of statutes of limitations provisions respecting environmental liability • Insurance programs for cost capping and civil liability protection
3. Building Capacity for and Community Awareness of Brownfield Redevelopment	**Marketing, Training and Economic Development** • Internet sites and conferences dedicated to brownfield redevelopment • Brownfield projects (emphasizing cost and benefits) showcased in government publications as examples of economic and community renewal • Post secondary education focused on the planning, environmental and business aspects of brownfields cleanup and redevelopment • Government support for new remediation technology development • Private sector advertising of services related to its brownfields expertise (technologies, assessment, insurance products) • Brownfield education and training programs • Partnerships between different levels of government to increase awareness of brownfields
Other Tools	**Institutional Capacity Building** • Historical use inventory • Contaminated sites inventory • Contaminated and environmental sites registry system • Performance measurement and monitoring • Streamlined approvals process and improved decision making process (time savings and increased certainty in process) • Contaminated sites policies, legislation and regulations • Power of entry rights to perform environmental site assessments on lands subject to a failed municipal tax sales process

	• Public consultation process for brownfield planning • Compatibility guidelines (noise, setbacks, etc.) • Compact urban form programs • Firm urban boundaries • Mechanisms for municipal incentive programs (e.g. community plans that permit financing programs through a land use planning framework) • Process model aligning the environmental approvals process with the planning process
	Planning and Incentives • Flexible zoning requirements • Mixed use policies • Brownfield policies in planning documents • Flexible parking and building regulations • Development permit system • Compact urban form programs • Flexible parkland dedication requirements • "Density bonusing"

Source: The brownfield policy tool kit was developed by the Provincial Planning and Environmental Services Branch (PPESB) of the Ontario Ministry of Municipal Affairs and Housing (OMMAH) with the assistance of staff from the Ministries of Environment and Energy, and Finance.

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Endnotes

1 Regional Analytics Inc., "A Preliminary Investigation into the Economic Impact of Brownfield Redevelopment Activities in Canada," unpublished background prepared for the NRTEE, 2002.

2 Revi-Sols is Quebec's provincial funding incentive program for brownfield redevelopment.

3 Regional Analytics Inc., "A Preliminary Investigation into the Economic Impact of Brownfield Redevelopment Activities in Canada," unpublished background document prepared for the NRTEE, 2002.

4 There is no "brownfield redevelopment cluster" in the economic data maintained by Statistics Canada. Instead, the research paper structured such a cluster from existing Statistics Canada data on environmental goods and services, based on a survey of developers and government agencies involved in brownfield redevelopment. The survey sought to identify the input-output profiles of that portion of the development industry that is redeveloping brownfield sites. Based on the results of the survey, the analysis assumed that the process of brownfield redevelopment begins with the developer, who conceives a redevelopment project, commissions studies, secures financing and hires remediation contractors, planning and construction firms, etc., to see the project through to completion.

5 U.S. information was based on Ahab Abdel-Aziz and Shari Elliott, "Facilitating a Brownfield Redevelopment Strategy for Canada," unpublished background document prepared for the NRTEE, 2001, and Regional Analytics Inc., "A Preliminary Investigation into the Economic Impact of Brownfield Redevelopment Activities in Canada," unpublished background document prepared for the NRTEE, 2002; information on other countries was provided by H. Kasamas, network coordinator, and Adrien Pilon, Montréal Centre of Excellence for Brownfields Rehabilitation, personal communication, July 2002.

6 U.S. research studies, cited in Regional Analytics Inc., "A Preliminary Investigation," 2002.

7 This is administered by local planning authorities, which are usually the municipal or district authority for the area.

8 In so far as these regimes affect land remediation activities, they are administered by the Environment Agency (EA) in England and Wales, and by the Scottish Environmental Protection Agency (SEPA) in Scotland.

9 Hara Associates, "Market Failures and Optimal Use of Brownfield Redevelopment Policy Instruments," unpublished background document prepared for the NRTEE, 2003.

10 In considering the impact of regulatory and civil risk on brownfields, it is important to recognize that the risks themselves represent real costs. The market failure is not a failure to recognize these costs but the inability to share them in a way that permits appropriate diversification of project risks.

11 ICF Consulting and E.P. Systems Group, 1999, cited in Hara Associates, "Market Failures," 2003.